

ORIGINAL

*IN THE MATTER OF:*

***West Lake Landfill  
Public Meeting***

*Cause No.*

*Transcript of Proceedings  
9/14/2006*

***Gore Perry Gateway Lipa Baker Dunn & Butz  
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Superfund

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1 U.S. ENVIRONMENTAL PROTECTION AGENCY

2 REGION 7

3 KANSAS CITY, KANSAS

4 West Lake Landfill Superfund Site

5 Bridgeton, Missouri

6 Public Meeting

7 September 14, 2006

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9 MR. GUNN: I would like to open the meeting  
10 on the West Lake Landfill postremedy for the  
11 landfill site out there.

12 My name is Gene Gunn, I'm with the  
13 Environmental Protection Agency in Kansas City.  
14 I'm a branch chief at the Superfund program. We're  
15 going to be tight, as I said earlier tonight, so  
16 come on in. There's a chair here. There's a  
17 couple of scattered chairs throughout.

18 We're going to be making a presentation  
19 tonight, and then we're going to follow that up  
20 with a public comment period. We'll give you some  
21 instructions at the time that we start the public  
22 comment period. Our goal is to start the meeting,  
23 go as quickly as we can through the presentation,  
24 and then have a public comment period trying to be  
25 out of here by about nine o'clock tonight. So

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1 we'll get some more instructions once the public  
2 comment period begins.

3 The purpose of tonight's meeting is to  
4 present EPA's proposed remedy to the West Lake  
5 Landfill site, take public comment on that  
6 proposal, and we'll be taking public comment  
7 tonight through October the 14th. So if you don't  
8 get your comments in tonight, there's ample time to  
9 get them in by October 14th. And we'll leave an  
10 address up, a phone number, an e-mail address on  
11 the screen at the end of the presentation where you  
12 can send those comments.

13 Let me do some introductions. I'm Gene  
14 Gunn with EPA: We have Dan Wall and Cheryle  
15 Micinski in the back all with EPA; Debbie Kring at  
16 the sign-up table over there. Kathleen Fenton will  
17 be our facilitator tonight, and she'll address you  
18 a little bit later. Chuck Cooper from MDNR --  
19 Missouri Department of Natural Resources -- Larry  
20 Erickson, Aaron Schmidt, Shawn Muencks, Earl Pabst,  
21 and Jim Bell. From the Department of Health,  
22 Missouri Department of Health and Senior Services,  
23 Gale Carlson. From the Agency for Toxic Substances  
24 and Disease Registry, ATSDR, Denise  
25 Jordan-Izaguirre and Paul Charp.

1 Public officials that I know about at least  
2 at this point at the meeting, Mayor Bowers and City  
3 Councilpersons Tom Fehrenbacher, Judy Pickett, Ron  
4 Simmons, Barb Abram, Linda Eaker, Andy Kasprzyk,  
5 and Christine Waitman. If there are any other  
6 public officials, please stand and identify  
7 yourself if you wish.

8 We also have a court reporter who will be  
9 recording the public comment session. She was back  
10 in that corner, she's right behind me, she will be  
11 here to record the public comments so we have an  
12 accurate record of the comments.

13 There will be three presenters tonight  
14 during the presentation. Dan Wall is the project  
15 manager for the site, and he'll be doing basically  
16 an overview of the remedy; some process background,  
17 talking about alternatives, and then our proposed  
18 remedy. Dave Watters from Cabrera Services will be  
19 giving a short presentation on the nature of  
20 radiation exposure. And Larry Erickson from the  
21 Missouri Department of Natural Resources will be  
22 giving the State's perspective on the preferred  
23 alternative.

24 Like I said, the public comment period's  
25 going to be facilitated. Kathleen Fenton will do

1 that facilitation. Like I said, she'll have some  
2 instructions later on in the meeting.

3 We've changed our presentation from the  
4 first meeting. This is the second meeting on this  
5 particular project. I'd also, before I go any  
6 further, like to thank the city council and the  
7 mayor for allowing us to use this room for the  
8 meeting, and we appreciate that very much.

9 We've changed our presentation. It's  
10 focused much more on what we received in comments  
11 that night, the night of the first meeting, and  
12 also comments we received in the interim. And so  
13 what we've done is we've focused the presentation,  
14 rather than on the whole landfill project that we  
15 talked about the first night, more on those  
16 radiation areas, the areas that have radioactive  
17 waste, in this presentation. That seems to be the  
18 bulk of the comments that we received at the  
19 meeting and so we're going to focus on that.  
20 However, if you want to make comments on the entire  
21 project, go ahead during the public comment period.

22 Even though we focused the materials, the  
23 presentation is still a little lengthy. We'll go  
24 as quickly as we can, and I beg your indulgence  
25 during the presentation and the length of it, we'll

1 go quickly as we can and still present all the  
2 information so that we can get to your comment  
3 period after that.

4 Just one thing before we start the formal  
5 presentation, or a couple things. Any alternatives  
6 that we would propose to you as our preferred  
7 alternative has to meet two threshold criteria  
8 before it can ever get to that stage: One of those  
9 is it has to be protective of human health and the  
10 environment, and the second one is it has to meet  
11 all regulations and laws that are applicable to  
12 that remedy. And it's our position that this  
13 remedy that we're proposing meets those two  
14 criteria.

15 And now I think I'll turn it over to Dan to  
16 start the presentation.

17 MR. WALL: Hello, everybody. I thank you  
18 for coming. Can you hear me well enough if I'm not  
19 right in front of the microphone?

20 I'm sorry the presentation is actually  
21 behind some of the people that are here. We  
22 couldn't figure out another way to arrange this, so  
23 I will, you know, beg your indulgence on that as  
24 well. I appreciate everybody coming out tonight,  
25 giving up your evening to come talk about the

1 landfill.

2 This is a site location map for anybody  
3 that's not exactly familiar with where it is. It's  
4 about a 200-acre parcel. My laser pointer just  
5 shuffled me forward.

6 Here's the 200-acre parcel, West Lake  
7 Landfill. It's about a mile from the junction of  
8 I-270 and I-70. We have the Earth City industrial  
9 park over here, Spanish Village is down here about  
10 three-quarters of a mile to the south, the Missouri  
11 River over here.

12 Just a quick review of the overarching laws  
13 and regulations here. CERCLA, or the Comprehensive  
14 Environmental Response Compensation and Liability  
15 Act of 1980, that is what we commonly call  
16 Superfund, Superfund law. The implementing  
17 regulations that gives more detail on how we  
18 investigate and make our decisions is provided in  
19 the National Oil and Hazardous Substances Pollution  
20 Contingency Plan. We referred to that as the NCP.

21 This is an outline of the Superfund  
22 process. These are all steps that we have  
23 accomplished, actually the preferred alternative,  
24 we're in process on that. But we've done the study  
25 and evaluation stage, and now we're at the public

1 comment period stage where we will receive public  
2 comment, make a record of that, evaluate it,  
3 determine whether any adjustments are necessary to  
4 the proposed plan, and then make a final decision.  
5 At that point we go into design and construction  
6 and long-term caretaking of the site.

7 A quick review of the principal evaluation  
8 criteria. I just want to stop and just emphasize  
9 this a little bit just to -- just so that -- convey  
10 an understanding that we need to base our decisions  
11 on effectiveness, implementability, and cost.

12 Those are essentially the primary criteria to form  
13 the basis for our decision-making. We don't have  
14 the latitude to necessarily do anything that we  
15 might like. It has to be rooted in these criteria.

16 Operable Unit 1. We divided it into two  
17 operable units, one that focuses on the  
18 radiologically contaminated areas, and there's two  
19 landfill areas that received radiological material  
20 back in 1973, it's part of a larger dedicated  
21 landfill site. We also have a, what's called the  
22 buffer zone/Crossroad property, or alternatively,  
23 the Ford Property. It's property that Ford used to  
24 own. It's adjacent to Area 2. That became  
25 radiologically contaminated at the surface when



1       some -- during an erosion event some years ago.  
2       Operable Unit 2 addresses a closed demolition  
3       landfill, it's a former active sanitary landfill,  
4       or the Bridgeton landfill, and then an inactive  
5       sanitary landfill. None of these areas received  
6       any of the radiological material.

7               The bulk of the comments we received have  
8       been on OU-1, Operable Unit 1, and so we don't plan  
9       to present on much on Operable Unit 2, although  
10      we're prepared to answer any questions on that if  
11      someone has any.

12             This shows the site boundaries within that  
13      200-acre parcel. Operable Unit 1, Area 1; Operable  
14      Unit 1, Area 2. There's the demolition fill, here  
15      is the inactive landfill, here's the Bridgeton  
16      sanitary landfill. The Bridgeton landfill, for  
17      example, is operated under a permit with the State  
18      and will be closed in accordance with the  
19      requirements of their permit. And keeping with our  
20      objectives, if you had any questions on that, we  
21      could probably turn that over with the State of  
22      Missouri.

23             We received a number of comments that  
24      indicate there's some questions, need for clarity,  
25      and an interest in the historic pitchblende ore

1 process and what the origins of this material is  
2 that ended up in the landfill. I didn't put this  
3 up here to put anybody to sleep, so I'm not going  
4 to dwell on it, but I want to address some of the  
5 basics.

6 This was a milling -- a process where -- a  
7 refinery process where milled ore, uranium ore,  
8 much it from the Belgian Congo -- that seems to be  
9 a point of interest because the Belgian Congo ores  
10 are particularly rich in uranium. It made them  
11 very valuable for uranium, for purposes of uranium  
12 recovery. And this process was designed to recover  
13 that uranium that was later used in the weapons  
14 complex. And the objective here was to keep the  
15 uranium in solution as uranyl nitrate, and it went  
16 through a couple of precipitation and separation  
17 processes where the first stage is designed to pull  
18 off the radium, and it led to the, what's commonly  
19 called, and people are familiar with these things,  
20 the K-65 residues, the radium bearing waste. And  
21 the second precipitated line was the -- is referred  
22 to as barium sulphate or AJ-4 residue. This  
23 material is rich in thorium, for example, and other  
24 rare earths. And this is the material that we're  
25 dealing with at the West Lake Landfill.

1           The K-65 residue, by contract, was still  
2           owned by the company that provided the ores, an  
3           African mining company I think, and they wanted  
4           them back. So that process was designed to recover  
5           this radium. It was -- these residues were stored  
6           in drums. They're highly radioactive. At least  
7           they contain all the radium, which is the threat in  
8           this material. It was stored in drums at SLAPS and  
9           later it wound up in some federal facilities in New  
10          York and Ohio.

11           Originally the barium sulphate cake was to  
12          go back to that company as well. I don't think  
13          any, either A-65 or the barium sulphate, much ever  
14          made it back. The barium sulphate cake is, by  
15          process, designed low in uranium. It's a tenth of  
16          a percent because they tried to recover all they  
17          could. They wanted to take the uranium out. It's  
18          got some radium sulphate in it, very low in terms  
19          of its concentration, but it could be significant  
20          in terms of its radiological impacts. And this  
21          material was also stored at SLAPS and ultimately  
22          went over to Latty Avenue and found its way into  
23          the West Lake Landfill. It was mixed with soil.  
24          It was about nine tons of these residues mixed with  
25          about 40,000 tons of soils, and then those soils

1 were used in the landfill process back in 1973 as  
2 intermediate and daily cover.

3 I'm going to turn it over to Dave Watters  
4 real quick because we've got some interest in  
5 exactly how people might be exposed to this  
6 material and he's going to give us a quick rundown.

7 MR. WATTERS: I'm Dave Watters and I'm a  
8 certified health physicist, radioactive physicist  
9 by trade, and I'm going to talk a little bit about  
10 radiation. I can't give you a Radiation 101 in  
11 five slides, but I'm going to talk about how it  
12 pertains to this particular topic and just a little  
13 bit of radiation background.

14 This slide here talks about natural sources  
15 of radiation. A lot of people are not aware that  
16 as human beings on the earth, we're constantly  
17 exposed to radiation. We're constantly exposed to  
18 radiation as human beings.

19 They come from a few different sources.  
20 The three that are shown: Terrestrial, which is  
21 the earth itself. The ore that was used is  
22 terrestrial radiation. If you were hanging out in  
23 the Belgian Congo you'd get exposed to a lot more  
24 if you were in and around the uranium mines than  
25 you are here. There's natural radioactivity in the

1 soil outside. And as we live and breath right now,  
2 we're getting exposed to radiation, not just from  
3 the building materials, but from the people sitting  
4 next to you. You might want to sit a little  
5 further away from them.

6 Internal radiation. We eat stuff that's  
7 radioactive. Bananas are radioactive. Bananas  
8 have been known to set off alarms when they go  
9 through radiation detectors because they have a lot  
10 of potassium. Potassium is good for you. A small  
11 fraction of potassium is naturally radioactive.  
12 It's been naturally radioactive forever. Another  
13 example of an internal radioactive material that  
14 you could eat could be contaminated soil. Kids eat  
15 soil. Soil has a little uranium in it. It has for  
16 billions of years. But primarily things like  
17 potassium in the foods we eat tend to give you an  
18 internal dose.

19 And then cosmic. A lot of radiation comes  
20 from the sky. I heard, and I can't vouch for this  
21 being completely accurate, but I heard the last  
22 time the cosmonauts were up there, when they came  
23 back, they were actually showing signs of acute  
24 radiation syndrome from all the exposures they get.

25 See, we're lucky down here on earth because

1 we have the atmosphere to protect us. People in  
2 Denver get a little more dose than you folks  
3 because they have a little less atmosphere to  
4 shield out the toxic radiation that comes from the  
5 sun and other bodies.

6 Let's talk a little bit about the sources  
7 of radiation. Not only are there natural sources,  
8 but there are sources that come from manmade as  
9 we'll show there. This is from NCLP 93, it's a  
10 government study that was performed some time ago  
11 and documented in '87.

12 The current estimate is 55 percent of the  
13 dose you get is from radon. One of the things I  
14 did want to mention, the other side, internal dose,  
15 one way get to internal doses is from breathing  
16 radon. It's not just from ingesting foods, but  
17 when you breathe, radon, radioactive gas, you guys  
18 probably heard of it back in the '80s, I think the  
19 EPA had the skull and crossbone as radon. You guys  
20 killed that stuff, right? It didn't go over too  
21 well.

22 But radon is natural. And I don't think  
23 you have as many problems out here with it. But as  
24 you may be able to tell, I'm from back in the  
25 Boston area, and out there we do have a lot of

1 problems with radon. And you can actually see  
2 radon when you tap on your T.V. set. And what  
3 happens is when you turn that T.V. set on, they all  
4 come flying off. But that's part of life because  
5 it's been here all along.

6 Food again, we talked about potassium,  
7 bananas, things like that. Terrestrial sources and  
8 cosmic sources. Manmade consumer products. One  
9 manmade source that you probably never get exposed  
10 to but you see it every day in life is smoke  
11 detectors. I imagine if I asked people to raise  
12 their hands, everyone in this room has smoke  
13 detectors where they live. Smoke detectors -- as  
14 we've talked about some of this stuff, you hear the  
15 term "picoCuries" floating around. PicoCuries is a  
16 unit of radiation measure. A smoke detector has  
17 about a million picoCuries. Every single one of  
18 those in your house.

19 Now, everyone thinks radioactivity is bad.  
20 The great news is it keeps people from dying. You  
21 know, smoke detector goes off, you leave the house,  
22 you get up before the fire gets to you.

23 We'll talk a little bit about how you can  
24 protect yourself from radiation in the next slide,  
25 but I'll come back to the smoke detectors because

1       it's an important concept. A lot of radioactivity  
2       in it, but it won't do you any harm. You don't  
3       open it up, you don't play with the smoke detector.  
4       You put the batteries in, you put it back up. It  
5       won't hurt anybody.

6               Medical sources. People get X-rays, people  
7       get those barium drinks, whatever they are where  
8       they do the upper G.I. and all that, people tend to  
9       get a dose from that. From a non-ionizing  
10      perspective, the magnetic imaging gives a dose.  
11      The other is -- less than 1 percent of that does  
12      include nuclear power.

13             Factors that influence radiation exposure.  
14      Now, this pertains mostly -- this is like a rule of  
15      thumb, it's a law for health physicists, people  
16      that protect people from exposure: Time, distance,  
17      shielding. The longer you stand next to something  
18      radioactive, the more dose you're going to get.  
19      Kind of common sense. The further away you are  
20      from it, the less dose you're going to get. The  
21      closer you are, the more dose you're going to get.  
22      If there's something in between you, a shield, like  
23      the dentist puts that nice lead blanket on you and  
24      goes around the corner before they hit the button,  
25      that has a little bit of shielding there. They get



1 shielding and distance, and it's a pretty quick  
2 snapshot. There's your time. That's how you  
3 shield yourself from gamma rays.

4 Now, going back to the smoke detector. It  
5 has a little gamma field of 241. It's one of those  
6 nasty Alpha emitters. We have Alpha emitters in  
7 the landfill right now. There's where a lot of the  
8 risk would come from if you were to breathe those  
9 materials. We can talk later about why you're not  
10 going to breathe those materials.

11 The smoke detector generally sits high, it  
12 has very non-penetrating radiation. It lets a lot  
13 of Alphas out, but they only go a little bit. And  
14 we can show that on the next slide. Oh, the next  
15 one after that. We'll get to it. I think I went  
16 through the concept of time, distance, shielding.

17 I think one thing that's very important as  
18 we look at this landfill is the shielding that is  
19 in the preferred remedy. Selected? Preferred?  
20 EPA selections. They're going to put a cover on  
21 the landfill if the plan goes through as planned,  
22 and that will prevent gamma exposure.

23 There's a few different ways we get exposed  
24 to radiation. We touched upon a few of them as we  
25 talked; one is you breathe the stuff, you know,

1     like I said you breathe the radon, you're breathing  
2     radon every day of your life. That's how life is  
3     on the earth. You can eat it. You eat  
4     contaminated soil, you eat bananas. You eat foods  
5     that have radioactive material in them naturally.  
6     They have always been there. And you can get  
7     exposed to radiation itself, such an X-ray when you  
8     go to the dentist or a medical X-ray. The  
9     shielding pertains mostly to the gamma radiation.  
10    Where the cover that we would put on this landfill  
11    could be analogous to the lead shield that you have  
12    on when you're getting your dental X-ray.

13             You put enough dirt on this thing, you  
14    could take the best health physicist in the world,  
15    I could take all my rad. geek buddies and say, Hey,  
16    I want you to find something. When you have that  
17    much dirt and concrete and all these crazy things  
18    that Dan's going to talk about on top of that,  
19    you'll never see the gamma radiation. That's one  
20    aspect of the potential dose from this.

21             We talked about infiltration being a  
22    potential way that you could get a dose of  
23    radioactive material, such as radon ingestion. The  
24    bananas again. Well, if you were to ingest, in  
25    some cases water, radon is in the water. Drinking

1 water with radon can cause doses in people.  
2 Drinking water that has these radioactive materials  
3 in it that are present in this landfill would cause  
4 doses in an individual. By capping it, we could  
5 limit the infiltration of water so, therefore, it  
6 wouldn't get into the groundwater. And Dan's going  
7 to get into that. I shouldn't go too far ahead.

8 We have eliminated the gamma radiation  
9 component by putting the shield on. We have a  
10 little lead blanket on it now. You can't ingest  
11 the material, like, as dirt, because it's buried  
12 under a whole bunch of dirt. So you have the dirt  
13 covering with shielding, you have it so you can't  
14 get the ingestion. I think the only concern would  
15 be groundwater, and these guys are going to address  
16 that.

17 Let's go the next slide. Methods of  
18 shielding. This isn't entirely applicable, but  
19 Alpha materials are the -- one of the radiations  
20 emitted from the radionuclides that are present at  
21 West Lake, they emit alpha, beta, and gamma. And  
22 this is not all that fun to show without having a  
23 rad. source here, but alpha particles won't make it  
24 through a piece of paper. These are big fat  
25 particles. They hit a piece of paper, they won't

1 make it through the other side. Beta particles,  
2 you need something a little thicker. Gamma  
3 particles, you need something a lot bigger. A soil  
4 cap would work pretty well to cover gamma  
5 particles.

6 So that's my spiel. I'll turn it back over  
7 to Dan. I could talk forever.

8 MR. WALL: All right. So we got this  
9 radioactively contaminated soil. They used it in  
10 the landfill process. And this just shows the  
11 generalized landfill operation. You can see that  
12 the truck dumps the municipal trash, the debris,  
13 the household waste. On the ground the heavy  
14 equipment rolls over it and then they put dirt on  
15 top of it on a daily and intermediate basis to sort  
16 of keep it in place until they put the next layer  
17 of trash on.

18 So this is how the material that we're  
19 dealing with here got introduced into the matrix of  
20 trash that fill this landfill. And so we don't  
21 have a big pile of dirt, radioactive dirt, out  
22 there. We've got a big landfill full of trash, and  
23 the soil is intermixed and sifted all through the  
24 column of the trash. This is a cross-section by  
25 the way. Some people had trouble recognizing that

1 at the first meeting.

2 This shows idealized trash soil cells.

3 It's really not like that out there. The soil is  
4 blended and sifted through the material. It's much  
5 more blurred in reality.

6 This is an attempt to illustrate that.  
7 We've got lenses, discontinuous lenses of soil  
8 intermittently mixed through the waste pile, and  
9 also sifted through to varying degrees.

10 This is an illustration of the migration  
11 pathways. It's intended to approximate the  
12 existing condition out there in a sort of cartoon-  
13 like fashion.

14 Out there now we have waste material that's  
15 actually at or near the surface. We don't have an  
16 engineered landfill cover over it. So we have the  
17 potential for groundwater to infiltrate the waste  
18 and produce leachate and potentially make it to the  
19 groundwater. We have gamma emissions, which if you  
20 were to occupy this space, you will receive a gamma  
21 emission from this landfill.

22 We have the potential for erosion because  
23 we don't have a cap that's designed to prevent  
24 that; we don't have a monitoring maintenance plan  
25 that requires that that be inspected and fixed. So

1       these are the kind of things we think we would use  
2       to address the situation.

3               Radon, we got some radon, not a lot of  
4       radon currently. The average is -- average radon  
5       flex is less than, say, the standard they apply to  
6       piles. That is the cleanup standard. Currently  
7       it's ventilated out there, there's trees growing on  
8       it, so it's not quite as stark as it looks there.

9               So taken altogether, the only way -- no one  
10       in this area, living and working in this area, is  
11       getting exposed to this landfill material under  
12       current conditions. Without us taking any steps  
13       whatsoever, the people working in Earth City are  
14       not being exposed; people living in Spanish Village  
15       are not being exposed; people on the Boenker --  
16       living and working on the Boenker property are not  
17       being exposed.

18               The only way we can get exposed under  
19       current conditions is to make your way inside the  
20       fence line, which is access-controlled by Allied  
21       Waste, and either dig into the landfill materials  
22       and ingest and inhale them or to take up residency  
23       on top of those areas. Or you could kick up enough  
24       material that it could get -- that it could get  
25       airborne and that would potentially be a threat for

1 people off site. So we have our migration pathway,  
2 we have our waste material in place.

3 There's two ways we can address this direct  
4 contact problem: And that's, one, we can remove  
5 the source. We could go in and excavate hundreds  
6 of thousands of cubic yards of trash and waste  
7 material and -- at great effort and expense and  
8 potential risk, introduce lots of risks and  
9 potential spreading of contamination. Or we can  
10 plop a cap, an engineered cap, down there that's  
11 designed to shed the rainwater so we don't get  
12 infiltration through the waste. Someone could do  
13 anything they wanted on top of there and not  
14 receive any gamma exposures because it will be  
15 designed to shield against that. We put a  
16 biointrusion marker layer in there so even someone,  
17 even some future retrograde condition, you know,  
18 you wouldn't be able to readily dig into this  
19 material. This can be safely done using the same  
20 techniques they use in landfills everywhere with  
21 great success. And gas, depending on how much gas  
22 we generated, we would have to vent that and manage  
23 it.

24 But, again, this is a dedicated landfill  
25 site. It's a site not only where waste is supposed

1 to be, it's a site where it's not only reasonable  
2 to put in containment and monitoring maintenance,  
3 but it's expected and required. So this is just  
4 the sort of use this property will always be used  
5 for.

6 This just lays it out in bullet form.  
7 Install landfill cover, gas monitoring and control,  
8 long-term groundwater monitoring, institutional  
9 controls to limit land use to things that are  
10 consistent with this being a landfill. We  
11 figure -- these are rough feasibility study level  
12 cost estimates. We figure we could put that in for  
13 about 22 million.

14 Here's a conceptual detail on the landfill  
15 cover that shows our -- the top layer's designed to  
16 hold vegetation, it's sloped to shed water. We've  
17 got a layer that's designed to prevent  
18 infiltration. It's got a low permeability. And we  
19 got our biointrusion layer and we've got the  
20 thickness we need to shield from gamma.

21 We had also evaluated excavation. We  
22 looked principally at a partial excavation  
23 alternative. Wholesale removal of the landfill  
24 from the landscape did not -- we didn't think  
25 offered a competitive solution, so we were trying



1 to design something that would combine source  
2 removal with containment, so this was the  
3 alternative we evaluated in detail. The concept is  
4 to target some of the more highly-contaminated  
5 areas. It's not clear how feasible that would be  
6 to actually target certain areas that give you more  
7 bang for the buck, but that was the concept. And  
8 we wanted to come up with a -- an amount of yards  
9 that maximizes the amount you could get out but  
10 minimizes -- but makes it a competitive  
11 alternative.

12 And we would have to come -- so we're  
13 dealing with, like, maybe a quarter of the overall  
14 radiological volume that we might have to deal  
15 with, not counting the unimpacted volume of  
16 landfill waste that would have to be moved in the  
17 process. So we would be left with a situation  
18 where we would have to come in and put in basically  
19 the same cap that we proposed to put on it anyway.  
20 And we figure we could -- for the feasibility study  
21 purposes, you know, we figure this would cost an  
22 additional 20, 25 million dollars. That's probably  
23 low. I was looking at the disposal costs the other  
24 day, and the numbers we used in the feasibility  
25 study are actually lower than what we would -- than

1        what it would cost us. But this could be done.

2                Excavation, what is involved. I want to go  
3        over just a little bit some of the things you face  
4        when you excavate a landfill, which is why we don't  
5        do it very often. Imagine having to dig into this  
6        landfill with heavy equipment, people with  
7        protective gear, introduce the potential for  
8        kicking up dust and particulates, and it's a very  
9        labor intensive operation. You know, people would  
10       have to physically pull metal and wood and  
11       appliances, and there's putrescible material in  
12       there, there's household trash, you know, small  
13       amounts of hazardous substances of all sorts. And  
14       we just think that that introduces all sorts of  
15       challenging problems that are difficult to manage.

16               One of the things we have to do is sort  
17       this material and do some extensive  
18       characterization sampling analysis because that's  
19       going to affect how you can transport and dispose  
20       of this material. Depending on what's in it,  
21       whether it's oversized material, whether it  
22       qualifies as debris, soil, trash, all these things  
23       affect the expense and whether or not a place will  
24       accept it. And so we have to have it thoroughly  
25       characterized.

1           And, of course, you again introduce the  
2           potential to disturb this material and then it  
3           becomes difficult to manage. And noise, odors,  
4           birds, windblown trash, all these things are not --  
5           are no small problem for the people that work  
6           around this area.

7           Worker health and safety adds another layer  
8           of effort and expense. The difference between  
9           doing a dirty construction and a clean  
10          construction's huge. People are limited in the  
11          amount of time they can work because they're in  
12          respirators and suits; there's lots of physical  
13          hazards, you know, slip/trip/fall sorts of things.  
14          We would have to have extensive workplace  
15          monitoring.

16          Some of these things, gamma exposure, for  
17          instance, we would have to limit that. To the  
18          extent it needs limiting, we would have to limit  
19          the amount of time that people worked in there  
20          because we can't -- the suits don't shield us from  
21          that.

22          Containment migration and spreading we  
23          think is a big problem. There's going to be a  
24          fugitive dust issue. Airborne, airborne dust. How  
25          do we address that? The conventional way to do

1       that is to apply water. Well, that brings with it  
2       a whole host of other problems. Keep the material  
3       wet, you're generating -- you're generating  
4       radiologically-contaminated water; you're  
5       generating -- leachate water is one thing you don't  
6       want to get into your landfill if you can help it.  
7       We have equipment decontamination water. We have  
8       water from open excavations. We're going to be  
9       pumping water, moving water around, treating water.  
10      And that's a big problem.

11               Waste hauling, transportation, you know,  
12      sure, there's going to be truck traffic out there.  
13      And you need them to haul in the landfill cover  
14      materials, that is going to involve some truck  
15      traffic, but this takes it to another level when  
16      you start talking about hauling waste out of the  
17      landfill. You know, we've got transfer facilities  
18      to consider. How do you get the dirty trucks to  
19      the clean trucks to the rails? And we get to haul  
20      waste on public roads. That's always a snafu. And  
21      there's just physical safety issues that you have  
22      to consider when you contemplate doing this kind of  
23      transportation.

24               Just for our modest targeted approach, I  
25      think we were looking at over 4,000 truckloads and

1 thousands of -- or over a thousand rail cars of  
2 stuff. You multiply that by DOT statistics, we're  
3 going to come up with some injury or death numbers  
4 that approach one.

5 Cost and schedule. This is another  
6 consideration. It's a more complicated design and  
7 construction. It could add years. We don't know  
8 how many years. It depends on how it lays out.  
9 Costs are highly uncertain going in because we  
10 don't know how long the delays might be, we don't  
11 know volume uncertainties. I haven't experienced  
12 one site yet where the volume estimates came in  
13 low. And if we have oversized debris, that needs  
14 to be handled specially. It has to be disposed of  
15 specially. It has to be routed in place at the  
16 commercial facility. That raises your expenses.

17 We have to characterize this for its  
18 hazardous waste potential. They do leachate tests  
19 on it. If we have any mixed waste there; that is,  
20 waste that qualifies as both radiological and  
21 hazardous, chemically hazardous, that really bumps  
22 up the expenses because then you have to treat that  
23 first before you can dispose of it.

24 And just to throw out, if you want,  
25 back-at-the-envelope sort of consideration, if you

1 want to think in terms of digging out all the  
2 radiological material in the landfill, we would be  
3 over 200 million.

4 So after considering all that, this is why  
5 we keep coming out with this conclusion; that it  
6 can be -- since we can safely manage it in place  
7 using the same techniques people use in landfills  
8 everywhere without putting anybody in danger, we  
9 can't come up with an argument for not doing it  
10 this way.

11 This is actually a very easy groundwater  
12 monitoring -- very easy groundwater regime to  
13 monitor. We can put in downgradient wells,  
14 upgradient wells, cross-gradients, whatever meets  
15 the State requirements for monitoring. Shallow,  
16 deep, intermediate. We will know what's in that  
17 groundwater. And we've got, of course, a lot of  
18 data on the groundwater now and it's relatively  
19 clean.

20 And the -- this illustrates the engineered  
21 landfill cover. This is the tow of the slope.  
22 What I wanted to point out, a lot of comments we're  
23 getting says: How could you do this in a  
24 floodplain? Well, just to clarify, technically,  
25 this is not a floodplain. We throw around -- for

1       these purposes we throw that around a lot, but it  
2       is not a floodplain in the sense it's behind the  
3       levy that's constructed for 500-year flood levels.

4               UNIDENTIFIED SPEAKER: What about '93?

5               MR. WALL: I'm not saying levies are  
6       infallible. What I'm saying is that it's not a  
7       floodplain, so we need to be careful about what we  
8       call it. I mean, the Earth City Levy District  
9       probably doesn't appreciate us calling it a  
10      floodplain. It's not a floodplain in terms of its  
11      FEMA classifications.

12              But if we do hypothesize that the levy  
13      fails or is breached in some fashion, the  
14      approximate flood surface is 450, 455 feet above  
15      sea level range, which brings it to basically the  
16      top of the landfill cover, which is elevated 40 to  
17      50 feet above the landscape. So this is the high  
18      ground. If there's a flood, you know, this is  
19      where you want to go to. Bottom line is it doesn't  
20      have serious implications for the landfill and so  
21      we don't see that as a problem. If there's a  
22      flood, I mean, if that levy doesn't hold, the last  
23      thing anybody needs to worry about is this  
24      landfill.

25              Larry. Okay? Thank you.

1           MR. ERICKSON: We're almost done. Bear  
2 with us. A few more minutes here. Again, my  
3 name's Larry Erickson, I'm with the Hazardous Waste  
4 Program with the Department of Natural Resources.  
5 I met several of you at the meeting that was held  
6 back in June.

7           Just, again, kind of a run-through of what  
8 the State's position is on this particular proposed  
9 plan. We've worked with the EPA on various studies  
10 that Dan has mentioned there. We believe that to  
11 make this particular landfill protective that you  
12 do have to isolate the material; you have to  
13 contain it to keep it isolated from human -- any  
14 exposure for humans, for people, and to the  
15 environment. And we believe that this remedy, the  
16 proposed land anyway, does have those appropriate  
17 safeguards to isolate and contain that  
18 contamination.

19           Again, one of the reasons, the main reason  
20 we're here this evening is to receive you, the  
21 public and the citizens living in this area,  
22 receive your comments on this proposal.

23           The decision -- our decision to support  
24 this isolation of contamination is made on, again,  
25 the studies that -- the investigation studies that



1 have been made for this landfill, the historical  
2 groundwater, river water elevations. Looking at,  
3 as Dan mentioned before, the potential hazards to  
4 workers and the adjacent property owners in and  
5 around that landfill if you were to do any type of  
6 excavation.

7 The distribution of the radiological  
8 contaminated materials, as Dan mentioned, was part  
9 of the daily cover. It spread pretty well  
10 throughout the landfill and there's no one spot  
11 that the material is located, so you would have to  
12 end up doing quite an extensive excavation to get  
13 out the hotspots if you will.

14 Again, historical investigations, the  
15 monitoring requirements that we have for both solid  
16 waste and for hazardous waste, like landfills,  
17 those types of monitoring requirements,  
18 particularly for the groundwater and for the gas,  
19 whether it be radon gas or methane gas, those are  
20 all part of the monitoring that would play into the  
21 long-term care, oftentimes called long-term  
22 stewardship of a site.

23 The remedial design. Once a planned  
24 alternative to address how this site is going to be  
25 remediated comes up, the remedial design

1 expectations that we as the State have and the EPA  
2 has is that there has to be an adequate cap design;  
3 there has to be a very detailed and very wide  
4 groundwater monitoring network to assure that the  
5 cap that's been put in place is, in fact, working;  
6 that it keeps that material isolated and contained,  
7 it's not getting out in the atmosphere, it's not  
8 getting out into the groundwater.

9 The landfill gas sampling and monitoring is  
10 very similar to the goal that you have with the  
11 groundwater monitoring.

12 Last but not least, the long-term  
13 stewardship. You'll probably hear that term used  
14 quite a bit. Long-term stewardship entails things  
15 like: What's going to be the operation and  
16 maintenance plan of a landfill with this cap?  
17 There would be if the grass that's grown on the top  
18 surface is not taking root, there would have to be  
19 maintenance done on that grass to make sure that  
20 there is a good vegetative cover that slows the  
21 rain down as it hits that top cap.

22 Other things, and you'll hear this term  
23 used, "institutional controls." Institutional  
24 controls are things like deed restrictions, land  
25 use controls, the City of Bridgeton's zoning

1 requirements. There will be some zoning  
2 requirements that won't allow -- this is, I  
3 believe, an industrial zoned complex. That will  
4 help to maintain that there are no residential  
5 homes built on top of this cap, on top of this  
6 landfill. The land use controls, I believe some  
7 that are already in place prohibit the use of  
8 putting any groundwater wells, drinking water  
9 wells, within the landfill.

10 Cap design. Our department has regulations  
11 for what a cap -- landfill cap should be. It's  
12 been agreed by both the State and with the  
13 Environmental Protection Agency that the protective  
14 cap will be used to contain and cap, isolate, the  
15 wastes that are there. It's there to prevent  
16 direct exposure for people that may be working on  
17 the site; it's also there to further restrict or  
18 impede any rainwater or surface water that might go  
19 down. It's not going to completely stop it, but  
20 certainly it will impede it. And water always  
21 goes, for the most part, goes downhill and it takes  
22 the path of the least resistance, so you try to  
23 keep a pretty good slope on this landfill so that  
24 it goes down across the grass instead of trying to  
25 go through the clay or the dirt in this case.

1           Here again, on the groundwater monitoring,  
2           again, both the EPA and our department do require  
3           ongoing groundwater monitoring for these types of  
4           facilities. It ensures -- the monitoring is there  
5           to ensure that the groundwater beneath the site  
6           does remain so it's not impacted by the  
7           contaminants in the landfill itself, and it's there  
8           to also -- that to confirm -- use those wells to  
9           confirm that there is no off-site migration to the  
10          groundwater, or in this case, to the Missouri  
11          River.

12           And, again, kind of a footnote there, our  
13          solid waste program uses those regulations to  
14          determine where those well -- what those monitoring  
15          well networks look like, the sampling frequency,  
16          what the contaminants would be monitored for. And  
17          we have used those regulations and laws as part of  
18          this -- our consideration for this proposed plan.

19           In similar vain, landfills do produce  
20          methane gas. In this case, with the radiological  
21          contamination, there is also the radon gas  
22          production that would be there. And so if this  
23          particular alternative that's being presented here  
24          this evening is chosen, there will be additional  
25          sampling to hone in on where the gas is or where

1 extraction wells would need to be placed, and try  
2 to get the best possible picture we can of where  
3 those gases are and how they can be captured and  
4 not cause an unrestricted or uncontrolled release  
5 of those gases. They need be treated in some  
6 fashion before they are released to air. And,  
7 again, the continued monitoring control of those  
8 surface water, groundwater, and gas production are  
9 all part of the solid waste laws and regs.

10 The long-term stewardship. As I mentioned  
11 before, long-term stewardship includes actually two  
12 things: Engineering and land use controls. The  
13 engineering controls would be things like putting a  
14 cap on there, having the groundwater monitoring  
15 network, the gas sampling and monitoring network.  
16 Those are things that -- construction, the physical  
17 things you can see done. Land use controls would  
18 include things like deed restrictions, land use  
19 controls, whether that be zoning, things of that  
20 nature. So that if a future owner or as the  
21 property might be sold, that future property owners  
22 as well as future citizens and generations that  
23 would be here know what's in that landfill and  
24 know: Let's leave it alone, let's make sure the  
25 cap is always maintained, let's make sure the

1 monitoring wells do tell us and are continuing to  
2 validate that there is no impact to the  
3 groundwater.

4 Overall position, and you all can read that  
5 probably as best as I can. I'll read to you where  
6 we're at just kind of as a reminder.

7 As you look at the proposed plan, or if you  
8 haven't had a chance to look at the proposed plan,  
9 there's a whole bunch of different alternatives for  
10 the various operable units within those different  
11 alternatives, but the proposed alternative is  
12 called L-4, and that's Operable Unit 1; alternative  
13 F-4, which is for the buffer zone; and alternative  
14 L-2, which is for Operable Unit 2, it does meet --  
15 those alternatives do meet technical aspects for  
16 the containment and isolation goal that we as a  
17 State regulator have.

18 In addition to those engineering controls  
19 contained in those alternatives, the long-term care  
20 and the monitoring should provide a robust and  
21 durable protection for this proposed remedy.

22 And with that, I think that's the end of my  
23 slides.

24 If after the meeting, after nine o'clock,  
25 if you all have other comments, we'll leave some of

1 our cards around here. If you want to send us an  
2 e-mail or give us a call on the phone. As Gene  
3 mentioned, he introduced the staff that we have  
4 here, if you want to talk to us individually  
5 tonight or later on, do come up and ask us those  
6 questions. Thanks.

7 MR. GUNN: It's now time to start the  
8 public comment period. This is where the  
9 administrative record is where you can find all the  
10 records associated with this remedy. That is in  
11 the handout I believe and an address.

12 And a couple of names. In fact, I'll leave  
13 this name up here, Debbie Kring with EPA, that's  
14 where you can send your comments. There's also an  
15 e-mail address at the bottom there where you can  
16 send your comments to the EPA: If you want, as I  
17 said, the public comment period is tonight, and  
18 then in writing or by e-mail through the 14th of  
19 October. So you have plenty of time to make  
20 comments on this.

21 I'll stop now and we'll leave that address  
22 up there. I facilitated the last meeting and  
23 obviously I was an absolute failure at it, so we've  
24 got somebody that does facilitation to take that on  
25 for us. The room is very crowded and we were going

1 to ask you to get up and come to the microphone to  
2 make comments. I'm going to move the microphone  
3 back, but if you can't get there, just stand up, be  
4 recognized. We'll try to repeat your comment after  
5 you make it, we'll get to the microphone and repeat  
6 it so everybody can hear it, and then we'll --  
7 unless it's very long, then I would like you to  
8 come to the microphone because it will be very  
9 difficult to repeat, but if it's just a short  
10 question, we'll repeat it.

11 And so I want to introduce Kathy Fenton  
12 again. She will give you some instructions.

13 MS. FENTON: Okay. With that, this time  
14 period we're going to try and get folks home by  
15 nine o'clock tonight. I have 15 cards that folks  
16 signed up and actually said that they would like to  
17 come to the microphone and speak. If you didn't  
18 have a chance to fill one of these out and check  
19 "yes," Debbie Kring has cards that you can fill out  
20 and you can -- Debbie can get to you, just raise  
21 your hand. We'll make sure that everyone gets  
22 their chance at the microphone.

23 What I'm actually going to do is call these  
24 folks in order, 1 through 15, and what I would ask  
25 you to do because we are recording this, the court



1 reporter is here, is to say your name, if it's a  
2 difficult one you might want to spell it out. We  
3 do have it here, but just so you know that. And if  
4 you have a question up-front, you might say that  
5 it's a question, state the question clearly; and if  
6 you have a comment, you're welcome to give a  
7 comment as well.

8 So with that -- and the other thing is is I  
9 would like to try and keep you all to about a  
10 three-minute presentation apiece. We'll take these  
11 in order. If you actually have a second comment,  
12 I'll take you after the 15th person.

13 Okay. With that, the first person up is  
14 Kay Drey.

15 MS. DREY: Hi, my name is Kay Drey. I live  
16 at 515 West Point Avenue in University City.

17 No one knows exactly how much radioactive  
18 waste and contaminated soils were dumped at West  
19 Lake Landfill in 1973 or exactly at what locations  
20 there, but we know that of all the land types where  
21 perpetually radioactive contaminants could be  
22 placed, probably none is any less appropriate or  
23 less secure than a floodplain in the midst of a  
24 densely-populated urban area along one of the  
25 longest major rivers in the world.

1           So then the question becomes: What do we  
2 do to undo this illegal non-solution to dump and  
3 run back in 1973? Do we do what's cheapest, leave  
4 the waste there and hide them under some rock and  
5 construction rubble and an unspecified amount of  
6 clay? Or do we dig them up and transport it away  
7 from water and away from people?

8           I think everyone in this room knows that  
9 the vast majority of Missouri River drinkers do not  
10 know about West Lake Landfill or that about 20  
11 percent of St. Louis County's water drinkers get  
12 their water only about eight miles downstream from  
13 the landfill. Or that St. Louis City's water  
14 intake is also downstream of West Lake. They do  
15 not know that a decision is about to be made about  
16 these wastes that could affect not only people  
17 living today, but also people 300 generations from  
18 now. So to repeat: What do we do? What should we  
19 do about these Cold War nuclear weapons wastes?

20           Unless and until the waste is removed, they  
21 will continue to migrate into groundwater used for  
22 farming and into the river used for drinking and  
23 fishing, and will continue to release radioactive  
24 radon gas and fugitive dusts in the air we need for  
25 breathing.

1 I believe the Environmental Protection  
2 Agency should mandate, instead, that the waste be  
3 dug up and removed from this urban floodplain using  
4 the most sophisticated equipment and technologies  
5 and worker protections possible; that the waste be  
6 transported as safely as possible to a licensed  
7 disposal facility; and that this choice and  
8 commitment be made now.

9 It was a great surprise to me to learn  
10 starting about 30 years ago that massive quantities  
11 of uranium had been imported into our urban St.  
12 Louis environment in the 1940s, '50s, and '60s from  
13 distant American and foreign mines and mills.

14 I learned, in fact, that Mallinckrodt  
15 Chemical Works, a mile from downtown, had purified  
16 all the uranium that went into the world's first  
17 self-contained nuclear chain reaction in December  
18 1942. Some of the waste at West Lake Landfill  
19 could well have been generated in those earliest  
20 months and years. That is, we have in metropolitan  
21 St. Louis some of the oldest radioactive wastes of  
22 the Atomic Age, and we do not yet have a safe  
23 technology or location to isolate even the first  
24 cupful. What scientists and engineers with  
25 technical knowledge and people with common sense

1 already do know, however, is that the Missouri  
2 River floodplain is not a safe location.

3 I have a lot of papers up here, but I also  
4 have a whole suitcase under the table.

5 Almost all natural uranium found on the  
6 planet earth is uranium-238, that is 99.3 percent  
7 the earth's uranium, and only seven-tenths of 1  
8 percent is uranium-235; therefore, the 235 isotope  
9 and its daughter products are not even detected in  
10 American soils and water.

11 Starting after the end of World War II,  
12 however, the U.S. Atomic Energy Commission  
13 announced its willingness to buy any ore that had  
14 at least one-tenth of 1 percent uranium. Most  
15 American ore contains only 1 to 2 percent uranium.

16 The ore process downtown at the  
17 Mallinckrodt Chemical Works, however, from the  
18 Belgian Congo averaged 60 to 65 percent uranium;  
19 therefore, the daughter products of the uranium  
20 from the Belgian Congo that were found in  
21 metropolitan St. Louis sites include materials that  
22 just are not seen anywhere else in the United  
23 States. The St. Louis sites include the airport,  
24 Latty Avenue in Hazelwood, downtown Mallinckrodt,  
25 Weldon Springs, and West Lake Landfill. And some

1 of those materials are among the most radioactively  
2 toxic of all radioactive materials known to-date.

3 People who seek to assure the public that  
4 radioactive materials are not particularly  
5 dangerous often say that radioactivity exists in  
6 nature, like bananas, and that mankind has evolved  
7 in a radioactive world. However, some radioactive  
8 materials are far more dangerous than others. And  
9 some of those materials are present at West Lake  
10 Landfill.

11 I would like to share with you some quotes  
12 from the CRC Handbook of Chemistry and Physics,  
13 2001-2002. Protactinium, for example, quote: Is a  
14 dangerous, toxic material and requires precautions  
15 similar to those used when handling plutonium. The  
16 International Atomic Energy Agency ranked  
17 protactinium-231, which we have at West Lake, as  
18 the most radiotoxic of the 236 radionuclides in a  
19 1963 report.

20 Regarding radium, quote: Inhalation,  
21 ingestion or body exposure to radium and other West  
22 Lake material can cause cancer and other body  
23 disorders, end quote.

24 Americium, which he talked about in the  
25 smoke detectors, is about 150 -- I'm sorry,

1 actinium-227 that we have at West Lake is about 150  
2 times as radioactive as radium, end quote.

3 One gram, or a 30th of an ounce, is the  
4 amount found in a packet of artificial sugar. One  
5 gram of radium-226 gives off 37 billion  
6 disintegration radioactive particles and rays every  
7 second. That's the amount of radioactivity in a  
8 curie. One gram of polonium-210, which is present  
9 at West Lake. Okay. Radium-226 gives off 37  
10 billion alpha particles. Polonium-210 gives off  
11 185 trillion alpha particles every second. And we  
12 have that at West Lake Landfill.

13 I want you to know, please, that these are  
14 very radioactive materials; that Belgian Congo ores  
15 are known all over the world; and if you were to go  
16 anywhere and talk to any citizens who live near,  
17 like, Niagra Falls or Tennessee or Colorado and  
18 say, We have some of the Belgian Congo wastes and  
19 the EPA wants and the State of Missouri DNR want to  
20 keep them in the floodplain of the Missouri River,  
21 they will not believe you. Thank you.

22 MR. WALL: Just to point out real quick the  
23 floodplain. This was the '93 flood. As we can  
24 see, the West Lake Landfill and everything within  
25 the levy is dry. So we want to make sure that

1       that's clear. And also all the reasons that Kay  
2       states is why we're going to put a cap on it.

3               MR. WATTERS: As a health physicist, I want  
4       to verify, without specifically looking at the  
5       figures that Kay quoted, that it all sounded pretty  
6       fairly accurate to me. We do at West Lake Landfill  
7       have some of the most radiotoxic radionuclides out  
8       there.

9               I mean, in general, without looking in the  
10      books, I think everything Kay said was true. And  
11      all that was considered in the design of this  
12      landfill. You know, a risk assessment was  
13      performed using the same parameters that came to  
14      the conclusions that Kay's conclusions did. And  
15      that's where we came up with the landfill design.  
16      That's really part of the design basis, is  
17      recognizing these radiotoxic elements. And I think  
18      everything she said was entirely accurate.

19              And Belgian Congo pitchblende is some of  
20      the best in the world, and that's why we got it.  
21      It is extremely radioactive, she is correct. And  
22      we recognize that. That was part of the design  
23      basis for this landfill.

24              MS. FENTON: Matt Appleman.

25              MR. APPLEMAN: I just have a couple of

1 questions. On the last diagram of the landfill is  
2 a profile. It has the water table and the landfill  
3 and the cap and everything. Directly under the  
4 fill is, I believe it's called "refuse construction  
5 debris." I just wanted to ask what -- if we knew  
6 the composition of that or compaction of that.  
7 What kind of material are we dealing with?

8 MR. WALL: The basic waste matrix that's in  
9 the landfill is -- it varies, I mean, from  
10 household trash, construction rubble and debris,  
11 metal, wood.

12 MR. APPLEMAN: So that's the actual  
13 landfill in the diagram? Because it has the fill,  
14 yeah, it has the fill and then right under that it  
15 has the refuse construction debris. Is the  
16 construction debris a part of the landfill? And if  
17 so, does it possibly contain radioactive elements?

18 MR. WALL: Yes. That is where the --

19 MR. APPLEMAN: Okay. That's where it's  
20 stored, it's not in the fill area?

21 MR. WALL: Right. The fill -- oh, the  
22 thing that's indicated as "fill" is clean fill that  
23 would have to be laid on top to bring it up to  
24 grade.

25 MR. APPLEMAN: Okay. Okay.



1 MR. WALL: The radioactive material is  
2 actually in the -- mixed in the area that's called  
3 "refuse demolition debris."

4 MR. APPLEMAN: Okay. And so has it been  
5 considered to cap the landfill on the eastern edge  
6 to protect groundwater coming through from the  
7 eastern -- because it flows from higher elevation  
8 to lower elevation. Was that ever a consideration?

9 MR. WALL: Well, groundwater, right now,  
10 the regional flow is very flat. It's to the river.  
11 It's controlled by the bedrock and alluvial plane.  
12 So the topography doesn't really have that much  
13 influence on it.

14 But the -- and then if you consider  
15 locally; that is, at the landfill itself, right now  
16 the groundwater gradient on the shallow water table  
17 is inward towards the sanitary landfill, what we're  
18 calling the formerly active sanitary landfill, or  
19 the Bridgeton Landfill, because they maintain a  
20 leachate collection system that pumps the shallow  
21 groundwater.

22 So most of the shallow groundwater in the  
23 areas that we're talking about tend to have an  
24 inward gradient towards that. But we don't see the  
25 groundwater -- I mean, we've got data on what's in

1 the groundwater, and even under existing  
2 conditions, we're not seeing much to be concerned  
3 about in the groundwater.

4 MR. APPLEMAN: Okay. And so you brought up  
5 the monitoring system for the groundwater,  
6 carefully checked at every level. And so obviously  
7 that's so you can record the levels and keep  
8 progress of that. And if there ever would be  
9 dangerous levels, you would know pretty quickly.

10 But the use of monitoring it, shouldn't you  
11 have a plan for if there were dangerous levels  
12 getting into the groundwater? Because it's a small  
13 possibility, but it could be a possibility.

14 MR. WALL: Right. I mean, part of our line  
15 of evidence is it's been sitting there for 30-plus  
16 years without a cap on it and it hasn't created a  
17 groundwater problem. So our basic assumption is is  
18 that if we put a quality engineered cover on it  
19 that's designed to prevent infiltration through the  
20 waste material, that that situation will only  
21 improve. So if we were to see something in the  
22 monitoring wells that was not in line with that,  
23 then we would be back rethinking the remedy.

24 MR. APPLEMAN: Okay. So there is no plan  
25 now? You would have to reevaluate?

1 MR. WALL: Yeah.

2 MR. APPLEMAN: Okay. Thank you.

3 MS. FENTON: Thank you. Rosemary Davison.

4 MS. DAVISON: I'm Rosemary Davison, 555  
5 Bluff Parks Drive in Florissant, Missouri, and I'm  
6 one of those people who live just a little more  
7 than eight miles from the West Lake and whose  
8 drinking water inlet is right at that point, and I  
9 am concerned about my -- the safety of my drinking  
10 water.

11 I'm not going to take a lot of time, I  
12 simply want to say that I concur with everything  
13 that Mrs. Drey has said, and I would simply add  
14 that as one who's worked for both the federal  
15 government and municipal government, it doesn't  
16 make any difference how dedicated you people are to  
17 the stewardship program, we can't guarantee that  
18 those who are going to follow you are going to be  
19 bound by those rules. So please take that into  
20 consideration. Thank you.

21 MS. FENTON: Arlene Sandler.

22 MS. SANDLER: My name is Arlene Sandler and  
23 I live at 6947 Columbia in University City. I have  
24 a written statement, but I'll just extract a few  
25 quick questions.

1 I've been reading about caps for landfills  
2 lately, and I discovered that they have a pretty  
3 limited lifespan and the waste at West Lake  
4 Landfill contains some extremely long-live  
5 materials. How far into the future is the proposed  
6 cap supposed to retain its integrity?

7 I'll just ask all my questions if that's  
8 okay.

9 MR. WALL: Would you like us to respond to  
10 each one or wait till you're finished?

11 MS. SANDLER: To reduce the amount of radon  
12 gas emissions from uranium mill tailings, I read  
13 somewhere that layers of soil as thick as up to 20  
14 feet are recommended. The wastes at West Lake  
15 are -- and that was for American ores. We've  
16 already heard about the Belgian Congo ores at West  
17 Lake, much hotter than those mined in the United  
18 States. Shouldn't a soil cap serving as a barrier  
19 to such radioactive materials be thicker? Have you  
20 determined the thickness? And do you think it's  
21 thick enough for those kinds of ores?

22 I'm also concerned because the cap is  
23 supposed to be made of construction, rubble, and  
24 clay and stuff with particles. Some of them will  
25 be small and some of them -- they're not all the

1 same size, there will be probably spaces and  
2 cracks. Would we be protected from radon gas and  
3 dust given that?

4 I know you're going to put vegetation on  
5 top, but plants can die and leave holes and, you  
6 know, that makes a pathway out of the waste. I  
7 wondered if you had decided on the type of clay  
8 that you were going to use here? There are lots of  
9 different kinds of clay. Clay has a tendency to  
10 crack, it's affected by frost. Some clays have  
11 acid in them and can increase the permeability of  
12 the cap and increase erosion. If the cap is  
13 breached, who pays for it? I just wondered, you  
14 know, if you've studied the clay and really  
15 evaluated which kind has, you know, the kind of  
16 permeability and diffusivity that would be best for  
17 this site. I guess that's it.

18 MR. GUNN: Okay. I detected about six  
19 questions.

20 MR. WALL: Okay. I guess overall these are  
21 the same kind of questions that people are dealing  
22 with everywhere. They're trying to maintain  
23 disposal of waste materials for the long-term  
24 including the mill tailing sites you're talking  
25 about.

1           And how long will the cap last? You know,  
2           the requirement under the Uranium Mill Tailings  
3           Control Act is that these things be designed to  
4           last 200 to 1,000 years I believe. Which is why  
5           they generally settle on natural materials for  
6           their covers because they don't -- the synthetics  
7           tend to degrade with time; whereas, natural  
8           materials tend to last indefinitely.

9           So that's probably -- we have, I guess I  
10          should say we have not designed this cap yet. All  
11          of these things will be factored into the design.  
12          We're just at the conceptual decision-making stage,  
13          but I imagine we'll be leaning towards natural  
14          materials as well. It's the material that the  
15          State specifies in their solid waste regs. Soil  
16          depth, thickness, we'll design that as well to  
17          account for the material that's in the landfill.

18          Right now, there isn't a lot of radon  
19          generation because there's very little radium on a  
20          concentration basis in this material. We do  
21          anticipate that, over time, as the radium -- as the  
22          thorium ingrows to radium that the radium  
23          concentration will increase and, therefore, the  
24          radon generation will increase. We will take that  
25          into account when we design the radon barrier.

1                   Particles or the cracks. Yeah, soil --  
2                   clay materials do tend to crack. They're also  
3                   self-healing, which is another reason that they're  
4                   preferred over synthetic materials. We will try to  
5                   account for that with the design requirements;  
6                   compaction, thickness, grade of clay. We haven't  
7                   gotten down to exactly what materials, maybe some  
8                   combination of natural clay and maybe some clays  
9                   that are known for their impermeability  
10                  characteristics.

11                 And it will be -- let's see what else we  
12                 got here. Plants. Plants, right. Well, that's a  
13                 good question. I mean, there's a lot of debate on  
14                 what you should do in terms of the coverage.  
15                 Missouri solid waste requirements are grass  
16                 vegetation that's maintained. Those are the  
17                 requirements that we think are most relevant and  
18                 appropriate to this situation because this is  
19                 essentially a municipal solid waste landfill basic  
20                 characteristic. We will consider other -- we will  
21                 consider optimizing that if there's good reason to.

22                 I know in the western states where they  
23                 have -- where they're dealing with the meltdown  
24                 sites, they tend to like covers that sustain  
25                 natural vegetation and would not be maintained;

1       that is, you wouldn't come out every year and mow  
2       the grass. You would encourage natural species to  
3       grow there.

4               We haven't made any of these decisions.  
5       Right now we've identified the Missouri solid waste  
6       requirements as the most relevant and appropriate,  
7       but we can modify that as we think is necessary  
8       because we have the flexibility to do that as long  
9       as the State goes along with us.

10              Who pays? Well, that would be the  
11       responsible parties that would be presumably part  
12       of the deal that we'd cut with them when we get to  
13       an agreement for design of the structure.

14              Long-term, whenever it fails, in theory,  
15       they still pay. If you're talking about what  
16       happens when the companies and governments that  
17       exist today aren't around, there wouldn't be a pay  
18       function in that situation. But as long as the  
19       company's around, as long as the EPA's around, the  
20       companies that are responsible, and assuming they  
21       agree to perform the remedy, will be the ones that  
22       pay.

23              MR. GUNN: One other thing, I'd just add to  
24       what Dan said, is that we're required to do a  
25       five-year review at a minimum of every five years



1 at a site where we leave waste in place like this.  
2 So there will be a five-year review, and we have to  
3 make an evaluation of the situation at the site and  
4 make a protective statement about the continued  
5 protective remedy, and it will go on in perpetuity  
6 to evaluate this landfill.

7 MS. FENTON: Next up is Anne, is it Hulce?  
8 H-U-L-C-E.

9 MS. HULCE: My only question is: Why  
10 wasn't everybody notified about these meetings? I  
11 found out about it, and I have a hundred neighbors  
12 that did not find out. I live in a mobile home  
13 park right across the street from the landfill,  
14 Spanish Village, and I found out from somebody, a  
15 friend me told the other night. And I think  
16 there's a lot of people that should have heard  
17 about it.

18 MS. KRING: Can I just make one remark. I  
19 have gotten 17 returned envelopes on Spanish  
20 Village residents. I don't know if there's a  
21 confusion on the addresses or --

22 MS. HULCE: On this meeting everybody got  
23 them because they were walked to our doors.

24 MS. KRING: No, I got them back for this  
25 meeting as well.

1 MS. HULCE: They were put on our doors. I  
2 did get something mailed saying that -- no. Yes,  
3 I'm sorry, I did get something. But a couple  
4 months ago there was another meeting, wasn't there?

5 MS. KRING: June 22nd.

6 MS. HULCE: Nobody -- a few, few people got  
7 it in Spanish Village and one was my neighbor. And  
8 I found out from him about this meeting. And so I  
9 called her, I called all my other neighbors.  
10 Nobody else heard about it. I just thought that it  
11 was awful odd how just a few people knew out of the  
12 whole subdivision.

13 MS. KRING: I guarantee you the EPA is not  
14 trying to hide anything.

15 MS. HULCE: Oh, no, that's not what I'm  
16 saying. It was just odd that only a couple people  
17 got it, and then all of a sudden everybody got it.

18 MR. WALL: We're trying to get it to you.  
19 I don't know if there's a glitch. We'll have to  
20 address that. We also put several notices in the  
21 newspaper. If you read the newspaper, you might  
22 have found out that way.

23 MS. KRING: What I'd like to do is explain  
24 what the process is to find out besides the  
25 newspaper. One of them is getting on the mailing

1 list. And that entails either filling out a card,  
2 the EPA has a 1-800 number on the card. You can  
3 call and tell me: I've heard about these things  
4 going on.

5 I hate to put the onus on you, but unless I  
6 have some parameter to work around to find out  
7 where everyone lives, we have to have a starting  
8 point and obviously it was not communicated as  
9 well.

10 And I appreciate your comment because  
11 you've given me the office number. I will tell you  
12 also, I have to make another provision to go out  
13 and get those because there are Privacy Act  
14 requirements that I don't know if that office can  
15 give me your address. But I will certainly find  
16 out. I made a note on that. And I appreciate  
17 that.

18 MS. FENTON: Remind me. There is a sign-up  
19 list going around. I don't know where it's at, but  
20 if you have not, if you're not on the mailing list  
21 and want to be, we will make that provision  
22 tonight.

23 Next up, Henry Robertson.

24 MR. ROBERTSON: My name is Henry Robertson.  
25 I work for Great Rivers Environmental Law Center.

1 I don't much like the idea of digging up  
2 radioactive waste and trucking it away, but I also  
3 don't like the idea of it sitting in what I choose  
4 to call a floodplain.

5 I question whether the liner and the  
6 groundwater monitoring will be adequate for waste  
7 that will be effectively hazardous for eternity. I  
8 question why presumptive remedies are being used in  
9 this plan when the proposed plan missed that  
10 radioactive waste makes this site atypical. This  
11 is not your average municipal waste landfill. I  
12 question why subtitle G remedies for municipal  
13 waste landfills are being used instead of subtitle  
14 C remedies for hazardous waste.

15 And, finally, I hope that you have  
16 considered or will consider the 1996 St. Louis Site  
17 Remediation Task Force report, which was a study  
18 conducted in the city and county, in which  
19 recommended a more stringent remedy than the one  
20 you're proposing for us tonight. Thank you.

21 MS. FENTON: Gary Gilliam.

22 MR. GILLIAM: Thank you for the  
23 opportunity. I found out through the newspaper  
24 several different issues and several different  
25 times, so it was available; otherwise, I don't live

1 in Bridgeton, but from the people that have  
2 addressed thus far, I'm probably one of the closest  
3 neighbors in Earth City. Our facility is in Earth  
4 City, I work in Earth City, have for the last  
5 decade.

6 In listening to the presentation, the  
7 most -- I believe the part that worries me the most  
8 is activated dust. Airborne. How do you maintain  
9 dust? Well, you water it down. What about the mud  
10 that gets on the vehicles, the tires, where does  
11 that mud go? Where does that dust go? You can't  
12 contain dust. And that's what scares me. And  
13 that's what the nuclear -- the Cold War was all  
14 about: Airborne. That was the design of the  
15 nuclear war, was to provide airborne radiation for  
16 death.

17 From my standpoint, I don't believe you can  
18 contain it. I believe containing it for the last  
19 three decades provides the best method with a  
20 proper cover. And we have to trust somebody. And  
21 there was some references that were made out west:  
22 This is the way it's done. There's references.  
23 This is not the only place that this exists I would  
24 say.

25 We've got the people here from EPA,

1 Missouri DNR that has evidently done their  
2 homework. And the EPA probably knows how many  
3 sites are like this in the United States. Are we  
4 alone? I don't think so. So my comment is from a  
5 neighbor standpoint, being less than a quarter mile  
6 away from the landfill and from this area, I want  
7 it to stay contained and I do not want the dust. I  
8 think that's the best thing to do.

9 MS. FENTON: Alf J. Stole.

10 MR. STOLE: Officials, my name is Alf J.  
11 Stole and I live at 11717 Beaverton Drive in  
12 Bridgeton, Missouri.

13 First, I wish to thank you, the EPA, for  
14 holding this additional public hearing to hear our  
15 concerns regarding the West Lake Landfill  
16 environmental problem and proposed solution.

17 Sometime ago I read a proposed plan by EPA  
18 for a remedy regarding the vast amount of  
19 radioactive waste that was dumped illegally at West  
20 Lake Landfill in 1973. One interesting paragraph  
21 regarding Missouri Well Construction Code caught my  
22 attention. This code prohibits the placement of a  
23 well within 300 feet of a landfill. The proposed  
24 plan goes on to tell us: This rule should provide  
25 protection against the placement of wells on or

1 near the West Lake Landfill.

2 This may be so. However, I do not believe  
3 this is much of a comfort to those people living  
4 and farming in the floodplain below. It is my  
5 understanding that some of them still use well  
6 water as drinking water source less than two miles  
7 downstream from the radioactive waste at West Lake,  
8 and most of the farmers downstream in the  
9 floodplain use well water for irrigation of their  
10 crops.

11 If this high-level radioactive waste is  
12 allowed to remain at West Lake, much of it will  
13 continue to find its way down the river valley with  
14 the rain water runoff and with seepage into the  
15 groundwater flow. And little by little, some of  
16 the radioactive waste will surely find its way into  
17 plants and animals and eventually humans.

18 It would be unthinkable that any government  
19 or governmental agency will allow such highly  
20 radioactive waste to be dumped in the floodplain  
21 today. But today, since we know that large volume  
22 of such waste still exists in the floodplain at  
23 West Lake, and today we also know that this site is  
24 not designed to store radioactive waste, I believe  
25 the only prudent solution is to remove it from the

1 site rather than just covering it up for future  
2 generations.

3 And one more thought. As I listened to  
4 some of the speakers here tonight, I heard them say  
5 if this cap is properly designed, and if it's  
6 properly constructed, and if it's properly  
7 maintained, and if it's properly monitored, all  
8 these things, that we can be assured that this  
9 thing will be contained. Well, if all of those  
10 things had been done regarding the levy down in New  
11 Orleans there would be fewer people that would have  
12 been killed during that big storm down there. Just  
13 a thought. And thank you.

14 MS. FENTON: Mary Allen.

15 MS. ALLEN: I'm going to cede mine to my  
16 brother, Matt Boenker.

17 MR. BOENKER: My name is Matt Boenker. I  
18 think you can hear me. I came up here from  
19 Huntsville, Alabama this morning. I always get on  
20 my knees at 4:00 and ask the Lord for guidance.

21 One of the things that they covered on this  
22 proposal is the fugitive dust, what that other man  
23 spoke about just a few minutes ago.

24 I'm going to show you something. I keep  
25 the army aviation good and healthy. What this is



1 is a particulate -- I measure particulates at the  
2 five, six, seven, up to fourteen micron.

3 I don't want to upset anybody because I  
4 actually -- we have big plans our farm. Our farm  
5 is right next to -- we're the neighbors of the  
6 landfill. We've had to put up with a lot of smell  
7 for a while, but it's gone, but now I'm worried  
8 about the dust. We got plans to make a winery  
9 there, and so that's why I don't want to upset  
10 anybody. You guys might be my customers. Or you  
11 will be my customers if I get this pulled off.

12 Anyway, I'm a particulate expert and I deal  
13 with small microns. And if I had any hair on my  
14 head, I could pull one off. What you have in your  
15 hair is about 80 micron. That's pretty big. And  
16 what you can see if you look at a, like, a window  
17 when the sun's coming in the window and you look at  
18 a little particle of dust, that's 40 micron.  
19 That's the least you can see with 20/20.

20 I deal with things that are invisible.  
21 This is one of the aircraft samples from UH-1. You  
22 know, I get nervous up here.

23 Anyway, the point is we take these samples  
24 on aircraft -- I'll try to pull all this  
25 together -- we take these samples on aircraft and

1 we make sure that they're at a clean level, at,  
2 like I said, the four, five, six, seven micron.

3 You may say how can you take a little bitty  
4 particle and take it out? Well, when you got a  
5 whole bunch of them -- and when we test these, we  
6 actually put a whole row of them, so we don't have  
7 to pick them out. We got a machine that actually  
8 does it for us. And what happens is we got the  
9 environmental clean rooms, if the machine goes  
10 down, the particulate that's right in the air that  
11 you're breathing, actually we have to stop the test  
12 then because the particulate that's in the air  
13 contaminates the particle. I deal with that both  
14 in fuel and hydraulics.

15 And I want to read you something. In the  
16 fuel -- I won't read the whole thing. My sisters  
17 told me not to do that. I have six sisters.

18 One health concern is that these particles  
19 remain suspended in the air and when inhaled lodge  
20 deep in the lungs, they were causing a variety of  
21 health effects. Now, this is just the fuel when  
22 even those airplanes flying over, I deal with the  
23 fuel of military aircraft, and when the particles  
24 are released from a turbine engine, you're  
25 breathing those, those get into your lungs. And my

1 job is to reduce that, and I'm doing a good job I  
2 think.

3 But one of the graphed points that was on  
4 page six, he said fugitive dust. And even fugitive  
5 dust, you know, pouring water on fugitive dust,  
6 that doesn't cut the mustard either. Like he said,  
7 it was the -- it runs off, then it's on the tire.

8 Anybody who cuts the grass and you see a  
9 dust mound go up, the reason why you can see that  
10 mound is because there's billions and billions of  
11 particles.

12 My brother, John, smokes and I tried to  
13 explain it to him today. I said the reason why you  
14 can see those molecules or the dust particles of  
15 smoke is because there's billions of them. But as  
16 soon as they dissipate, you can't see them no more.

17 So my comment is this: How much acid do  
18 you want in your drinking water? And the answer  
19 should be zero. Well, we want to start a farm.  
20 It's the same thing. How much particulate,  
21 contaminated particulate, do you want in your air?  
22 Zero.

23 The only way we can do that is potentially  
24 do what they're saying. Cap it. We may end up  
25 digging it up later, but we don't have the

1 technology to keep the particulate.

2 When they were telling me earlier today  
3 about filters, the reason why we have so much  
4 particulates in army aviation aircraft is because  
5 the filters are lousy. So even a five micron  
6 absolute filter -- we're studying that too -- even  
7 those filters that we watch under the microscope,  
8 you look at them and they capture the particles,  
9 but guess what, when we test them they're actually  
10 tested at a stable, no vibration. As soon as we  
11 vibrate them, like with the aircraft, it releases  
12 all the particles. So even good filters are not up  
13 to speed.

14 So how much contaminant you want in your  
15 water? Zero. I don't want any in our air either.  
16 And I think it will upset the grapes too. So I'll  
17 shut up. Thank you.

18 MS. FENTON: Lucy Smith.

19 MS. SMITH: Hi. I'm the baby of the  
20 Boenker farm. I grew up right next to the landfill  
21 smelling all that smelly stuff. Growing up next to  
22 it you kind of get adjusted to it.

23 And I just want you guys to know that I've  
24 moved to Defiance, which I pass Weldon Springs  
25 maintenance. That's where we have the big EPA -- I

1 don't know how much money they dumped into it, but  
2 we moved into that area, and just in the last ten  
3 years we saw it being capped off. And like one of  
4 the gentlemen said, you try to contain all the  
5 particles in the air, and you do it with water,  
6 that's the only affordable resource we have, but  
7 the water goes somewhere and it gets tracked on the  
8 mud, it gets out on the street. Where else does it  
9 go?

10 So I would uneducatedly say it's better to  
11 keep it contained. My concerns are: How do you  
12 contain something, you know, you got gases, how are  
13 you going to contain that methane gas? Is the  
14 radon coming out in the methane? That's my  
15 concerns. Thank you.

16 MS. FENTON: Edward Boenker.

17 MR. BOENKER: I'm happy to be here with all  
18 of you tonight. The last two people that spoke  
19 were my daughter and my son. And I'll let you know  
20 that I'm one of six generations on the same farm  
21 that adjoins the landfill. And people always say,  
22 Why do you stay there so long? They accuse me of  
23 being stuck in the mud.

24 So, I just want to make one comment. All  
25 the intelligence that has been put into this

1 program, it's unending. And the future is not for  
2 us to know what's going to happen. All we can do  
3 is make the best of what we know today and plan for  
4 the best of tomorrow.

5 And with that, you know where I stand as  
6 far as leaving it as it is. I think it would be  
7 safer. And let's hope it stays. Thank you very  
8 much.

9 MS. FENTON: Dan McKeel.

10 DR. McKEEL: I'm Dan McKeel, I'm a  
11 physician, a pathologist, and I have spoken before  
12 about the West Lake Landfill.

13 One of the first comments I want to make is  
14 about the way the cost of the alternatives was  
15 presented. And I want to say up-front that I am  
16 for removing the waste and taking it off site. To  
17 Utah, for example. Well, there are not very many  
18 places that will accept it, and that's one of the  
19 places that can.

20 The way the costs were presented was \$22  
21 million for the preferred alternative versus \$75  
22 million to excavate and remove, with the costs for  
23 the excavation being as high as \$200 million  
24 according to Dan Wall.

25 Well, one of the things that was not

1 presented fairly was that monitoring and  
2 maintenance cost a lot of money. And it was  
3 mentioned that Weldon Spring, there's a site where  
4 actually the EPA oversaw a project that cost more  
5 than \$900 million. But the annual cost for  
6 maintenance and surveillance there, and the remedy  
7 that was chosen, means that it has to be done for  
8 another hundred years is approximately a million  
9 dollars a year. So if you multiply just one  
10 million times a hundred, you come up to a hundred  
11 million dollars over a hundred-year period.  
12 Whereas, the cost of that would not have to be  
13 borne by this area if it were removed and taken  
14 away.

15 The other thing is the feasibility of  
16 removing all of the contamination. I have from  
17 that remedial investigation the numbers that  
18 show -- this is table 6-10 -- it shows that the  
19 estimated total thickness of the radiologically  
20 impacted materials in feet -- this is from the top  
21 of the landfill now -- it ranges anywhere from one  
22 foot down to ten feet with an average of 3.73 feet.

23 So over this very wide area, which actually  
24 in that report there's 150 -- 146,000 cubic yards  
25 versus the 85,000 that Dan mentioned. But that

1 large amount of soil is distributed over a  
2 relatively narrow depth. So the idea that you  
3 couldn't remove that, I think, is not true.

4 I just want to comment that if you look at  
5 the remedial investigation, it's very clear that  
6 the landfill soil and the groundwater are both  
7 contaminated. Some of the levels of thorium-230,  
8 for instance, were as high as 178,000 picoCuries  
9 per gram for thorium-230. And in the groundwater,  
10 I would say that the data in that remedial  
11 investigation proves that the entire site  
12 groundwater has already been impacted.

13 So, for instance, the background wells,  
14 which are supposed to be the natural levels, we  
15 find that the background levels are also impacted  
16 by radioactivity. And I can read you that. It  
17 said: Constituents in the uranium-238, the  
18 uranium-235, and thorium-232, the K series, were  
19 detected in both the upgradient background wells.

20 And what that means is, upgradient means  
21 this is away from the direction of the flow of  
22 water. So those background wells have all of the  
23 major contaminant series of the radioactivity. So  
24 I wouldn't feel at all complacent with the idea  
25 that the groundwater is not impacted.



1           The other thing I would say is that there  
2           is a comment in the proposed plan repeated in the  
3           remedial investigation, also repeated by Dan Wall  
4           tonight, that the groundwater is relatively clean  
5           and that there really has been no groundwater  
6           problem detected in the past 30 years.

7           Well, I would mention that you can't say  
8           that the groundwater has not removed -- moved off  
9           site because there are no central wells, there are  
10          no monitoring wells placed at a distance in Earth  
11          City, for instance, or in Spanish Village that  
12          would detect a plume moving away from the site.  
13          What we do know is that the groundwater wells all  
14          around the perimeter of that cell, including the  
15          Ford property, have been impacted.

16          The other comment is that there won't be  
17          spread of the radioactive contamination within the  
18          landfill itself. And I'll just mention that if you  
19          go and you look at that, at the landfill, you'll  
20          notice -- I don't know how many of you all can see  
21          this picture -- but what you see there is one slope  
22          of the landfill, and it's pure dirt. So when  
23          there's a heavy rain, obviously that water is going  
24          to wash down and wash off of that site. So that's  
25          another way that radioactivity can run off into the

1 surrounding land. And I would, if I were going  
2 start a farm and grow grapes for wine, I would be  
3 very worried about that sort of runoff.

4 The other comment I wanted to make is that  
5 there are 17,000 people who work in Earth City.  
6 And when I was photographing and looking at the  
7 site, I'm impressed how close Spanish Village is  
8 with its homes; there is a municipal park and the  
9 children play there.

10 The other comment, the last one really, is  
11 that the water table in this area is quite high.  
12 And as anybody knows who's looked around this area  
13 in Earth City, there are many surface water ponds.  
14 And those ponds are controlled with pumps.

15 And I just wanted to read you what the  
16 remedial investigation of that says. It notes that  
17 the runoff from the landfill goes into the north  
18 water body. And it says here that the north  
19 surface water body receives water from the drainage  
20 ditch that separates St. Charles Rock Road from the  
21 landfill. The body contains water throughout the  
22 year. The flood control channel is part of an  
23 extensive set of interconnected channels that are  
24 used to manage storm water runoff within the Earth  
25 City industrial park. The water level in the flood

1 control channel varies through the year in response  
2 to variations in precipitation and changes  
3 resulting from pumping by Earth City of water from  
4 the flood control channel to the Missouri River.

5 So I would argue that the groundwater  
6 beneath the landfill is connected to the surface  
7 water all over this area, and that that in turn is  
8 connected to the Missouri River. And so it's  
9 highly likely, given the type of less fine soil  
10 that's in the floodplain area, that that  
11 groundwater has already migrated away from the site  
12 and that, in fact, there is a plume.

13 So I would say that all of these things  
14 together, the cost factor, which I think is  
15 comparable for leaving it in place to removing it.

16 And also I would mention that the idea of  
17 excavating and removal; for instance, at the Dow  
18 Chemical plant in Madison, Illinois, which I'm  
19 working in with those workers, they, in fact, had a  
20 remediation just like this in 1993 where they  
21 removed 1,000 railroad cars with thorium-232 sludge  
22 and took that off-site to Utah. So it certainly  
23 can be done and it certainly can be done safely.

24 I would say all of these things together  
25 should argue strongly for Alternative 6, to dig it

1 up, remove it, and take it away from the site.

2 Thank you very much.

3 MR. WALL: Well, we can sit down sometime  
4 and hash through the numbers I guess, but we don't  
5 draw the same conclusions from the groundwater  
6 data. I could find -- certainly I didn't mean to  
7 say that there was zero impact. It is a landfill  
8 site after all. It's just that the impacts are  
9 quite small. There's some parts per billion levels  
10 of volatile organics, things that you'd expect to  
11 be associated with a municipal solid waste  
12 landfill. We don't see impacts from the  
13 radionuclides. Those that we detect are -- you can  
14 find those same series of radionuclides in any  
15 water. These are naturally-occurring materials.  
16 We don't believe we have found significant impacts  
17 from the landfill areas on the shallow groundwater.

18 I would say on the volume -- on the volume  
19 numbers, the 85,000 cubic yards is after applying a  
20 bulking factor. So if you're looking at that  
21 146,000, you would have to apply a 200 percent  
22 bulking factor to get a comparable number in terms  
23 of the wholesale excavation.

24 MS. FENTON: Next up, Kathleen Logan Smith.

25 MS. LOGAN SMITH: First I want to thank

1 everybody for coming, you know, I know it's a busy  
2 night. Thank you for being here.

3 I'm with the Missouri Coalition for the  
4 Environment. We collected over a thousand  
5 signatures of people who don't think leaving  
6 radioactive waste in the floodplain upstream is a  
7 good idea, and we're going to turn these in to you  
8 guys. So this set is for you. And this set is for  
9 you.

10 Most of my comments I'm going to submit in  
11 writing, but I wanted to talk about a few things.

12 First of all, I'm going to submit two  
13 studies for the record. They were done by the NRC,  
14 the Nuclear Regulatory Commission, one of them in  
15 1988, the Radioactive Material at the West Lake  
16 Landfill Summary Report. The other one done in  
17 1982, Radiological Survey of the West Lake  
18 Landfill. You may already have these, I just want  
19 to make sure they're in the record.

20 The 1988 report has conclusions and  
21 recommendations at the back and one of those  
22 conclusions is: Based on monitoring, well sample  
23 analysis from low-level radioactive -- from  
24 low-level contamination groundwater is occurring  
25 indicating the groundwater in the vicinity is not

1 adequately protected by the present disposition of  
2 the waste. It goes on to say that there's mixed  
3 waste in there, it goes on to say that the  
4 radioactivity has been increased. The radium is  
5 going to increase by a factor of nine in the next  
6 200 years, by a factor of five in the next 100  
7 years. These studies need to be part of the record  
8 because they drew a different set of conclusions.

9 The other thing that's important to me is  
10 that we did draw a different set of conclusions  
11 from the same set of data, so I encourage you to  
12 also look at the data. If you can't find it on the  
13 Web site for the EPA, check the Missouri Coalition  
14 for the Environment. We're trying to post as much  
15 of this as possible so you can evaluate the data  
16 yourself.

17 It's important to me that we talk about  
18 groundwater. I understand -- I share everybody's  
19 concern about dust if we're talking about an  
20 excavation situation. Whatever we do in terms of  
21 removing the waste from that site, we have to do it  
22 like it's never been done before. We have to do it  
23 in a way cleaner than it's ever been done before.  
24 We may have to do something that makes the area  
25 seem like Area 51 in order to do it right.

1           And I'm saying to you tonight, if not this  
2           generation, which one? Because every single  
3           generation that has had their hands on this stuff  
4           has spread it around and made it a bigger mess for  
5           the next one.

6           So if had been handled -- Dan said when he  
7           opened that there was about nine tons of barium  
8           sulfate. I think he misspoke. There were 9,000  
9           tons of barium sulfate. 8,700 tons to be precise.  
10          And that got mixed with soil and it became a 43,000  
11          ton problem. And now it's over a hundred thousand  
12          ton problem. And if we wait -- the longer we wait,  
13          and the longer we fail to address it, it makes it a  
14          bigger problem for the next guy.

15          So where's your conscious and your sense of  
16          responsibility? Are we going to step up to the  
17          plate? Are we going to commit ourselves to the  
18          long-term finding of a solution?

19          I am here tonight to support Alternative  
20          No. 7. Get back to the drawing board and come up  
21          with something that works. No. 6 doesn't work  
22          because it doesn't get all the waste out and it  
23          doesn't monitor effectively, it doesn't take care  
24          of the groundwater.

25          The thing that we need to talk about is the

1 groundwater. And I love this (indicating) because  
2 this is going to illustrate my point. This is the  
3 river, this is the flood. It's going this way.  
4 The groundwater, guess what, is flowing this way.  
5 The groundwater in the alluvial aquifer is part of  
6 the river. It is the river water. If we had a  
7 hydrogeologist here tonight, I would love to hear  
8 their take on it. Because every hydrogeologist  
9 I've ever talked to says that the alluvial aquifer  
10 is a sponge adjacent to the river and the water  
11 flows through the alluvial aquifer like it does a  
12 sponge. So there is water flowing underground.  
13 Underground.

14 So, no, it's not going to flood even if the  
15 levy holds till the end of time. That's not my  
16 concern. My concern is: Is the groundwater  
17 contaminated? It's going into the river. It's  
18 going this direction. All the data says so. And  
19 it's moving towards our drinking water intakes into  
20 these farm yards, into these irrigation wells.  
21 It's something that is not adequately characterized  
22 and nobody's taking responsibility for it in these  
23 plans. And we need to address it. The problem  
24 with the study is that it draws completely  
25 inaccurate and logic-defying conclusions from the



1 data.

2 The other thing that's comical about the  
3 conclusions of the plan that they have come up with  
4 is that they talk about long-term stewardship and  
5 institutional controls. If you read the documents,  
6 you will be disturbed to discovered that the State  
7 closed, closed, the West Lake Landfill where this  
8 stuff is in 1974. They started doing radiological  
9 investigations. Subsequently the Regulatory  
10 Commission came in there to try to figure out  
11 what's going on with the site. In 1980 they came  
12 in and were doing gamma readings on the surface in  
13 the fall, and then the technicians came back to do  
14 some more gamma readings in the spring and were  
15 surprised to discover that the gamma readings had  
16 decreased because somebody had come in with more  
17 truckloads of waste on both sites and dumped three  
18 to four feet on top of what was technically a  
19 closed landfill.

20 Now, is this the same entity that's going  
21 to give us institutional controls from now till the  
22 end of time? I mean, they have done such a great  
23 job in the last 33 years, I'm not sure we can trust  
24 them. Even if these people's intentions are the  
25 very, very best, the record is not there to support

1       that.

2               The other thing that you'll be surprised to  
3       read in the documents is that the berm on Area 2 on  
4       the north side of the landfill that's closest to  
5       Earth City, it's already failed and contaminated  
6       the property off site. The Ford property and  
7       Crossroads property is contaminated. And then they  
8       did the remedial investigation, they came in, they  
9       discovered that this off-site contamination  
10      existed. They didn't do anything about it because  
11      it has vegetation growing on it which basically  
12      meant it's got grass growing on it, we think it's  
13      fine, so they didn't do anything.

14              Then they had to come back in 2003 and  
15      discovered that the company, and the people who  
16      have the semi-trailer park, the company next-door,  
17      had moved it around again with the road grader.

18              And so if this is the same organization  
19      that's going to be providing institutional controls  
20      when they have failed miserably just in the last  
21      six years when they have been doing the study, I'm  
22      disturbed. I am not confident that this can  
23      happen. I don't have a lot of faith that this is  
24      the solution. But I think we can find a solution.  
25      And not only that, I think we have to. And I think

1 we have to work together. We have to address the  
2 concerns about dust, we have to address the  
3 concerns about groundwater, and we have to do it in  
4 a way that's meaningful and legitimate. And every  
5 alternative that's been on the table tonight is  
6 inadequate to live up to what we need to protect  
7 people in Missouri.

8 And the bad news on particulates is that  
9 we're already out of compliance for fine  
10 particulate matter in St. Louis, though it's not  
11 radioactive, but that's another story.

12 The PRP's for the site are trying to get  
13 out of their liability. They want to get this  
14 liability off their books. They're the potentially  
15 responsibility parties. And I don't blame them.

16 But, ladies and gentlemen, it's going to be  
17 on their books and our books until the end of time.  
18 And we're just going to have commit ourselves to  
19 being part of the solution and keeping a very close  
20 eye on the site and getting it out of the  
21 floodplain so that the next generation won't have  
22 to deal with the headache.

23 The other piece of data I found today is on  
24 page 82 of the remedial investigation. It talks  
25 about how fast the groundwater is moving. And if

1       you do the math, over a couple of decades, it may  
2       have already moved half a mile off site.

3               So, things that need to be looked into,  
4       lots of questions that still aren't answered, lots  
5       of facts you still need to ascertain. And we're  
6       here for the duration. So is the waste. We need  
7       to get it out of the floodplain. That is our  
8       generation's call. It's what we have to do to  
9       protect the next set of folks who live on this  
10      plain.

11             MS. FENTON: We have five more people who  
12      would like to speak. It's about ten after 9:00. I  
13      just want to be respectful of the time. If you  
14      need to get home, I can give you a break right now  
15      to step out if you'd like to. Next up is Melanie  
16      Herberger.

17             MS. HERBERGER: I bought my house in 1968  
18      and I have five children, and in 1973 my children  
19      and me were in that house 24/7. Was it airborne  
20      when they were running their graders over it and  
21      dumping these piles of dirt? Did this get airborne  
22      when they dumped it originally in 1973 to 1974?

23             MR. WALL: Well, there's certainly the  
24      potential that it was.

25             MS. HERBERGER: Well, what happens to it

1       once it gets airborne? Does it ever get out of the  
2       air?

3               MR. WALL: Ultimately, yeah. Yeah, I mean,  
4       it would disperse to the point that you wouldn't be  
5       able to measure it.

6               MS. HERBERGER: Would it go to the ground  
7       if it rained?

8               MR. WALL: Sure. It will go the same place  
9       all dust goes. It disperses to infinitesimal --

10              MS. HERBERGER: Well, how bad would it have  
11       been when they dumped it?

12              MR. WALL: We don't have a lot of good  
13       information on that. It would be all speculation.

14              MS. HERBERGER: Well, how long would it  
15       take to get out of the air?

16              MR. WALL: I don't think we have to worry  
17       about anything that went into the air.

18              MS. HERBERGER: Not now. I'm not talking  
19       about now. I'm talking about when I was there and  
20       my kids were there. How long would it take?

21              MR. GUNN: We just don't have any data to  
22       base it on. We can't tell you.

23              MS. HERBERGER: You don't know. That's all  
24       I really wanted.

25              MR. WALL: I guess the good news would be

1       that it was an episodic event. It's not something  
2       that went on.

3               MS. HERBERGER: No, but it went on for a  
4       year. That's a fairly long time.

5               MR. WALL: I wouldn't be able to answer  
6       that question.

7               MR. GUNN: That is one of the primary  
8       reasons we would like to cap this material and get  
9       it controlled.

10              MS. HERBERGER: I understand that, but I  
11       would also be interested in the groundwater. Can  
12       you clean it up out of groundwater?

13              MR. WALL: Well, we can monitor, make sure  
14       it doesn't get in the groundwater.

15              MS. HERBERGER: You can monitor it, but you  
16       can't clean it up. I mean, the only way to clean  
17       it up is to remove it, right?

18              MR. WALL: If it got in the groundwater you  
19       can, in theory, pump it out. But we would be --  
20       the remedy would not be functioning as we  
21       anticipate it if we find any in the groundwater.

22              MS. HERBERGER: But we're, like, between a  
23       rock and hard place, right? I mean, we got it  
24       airborne or we got the water.

25              MR. WALL: We would reevaluate the remedy

1 if we found groundwater problems.

2 MS. HERBERGER: Okay. That's all I wanted  
3 to know.

4 MS. FENTON: Denise Brock.

5 MS. BROCK: Hi. I just sort of scribbled  
6 some things while I was sitting here. First of  
7 all, I'd like to say what a legacy of waste that  
8 Mallinckrodt has left on this entire city.

9 In 2001 the federal government actually  
10 enacted a law called the Energy Employees  
11 Occupational Illness Compensation Program Act.  
12 That law was actually to compensate those workers  
13 who were made ill in the nation's nuclear weapons  
14 industry, workers that worked at Mallinckrodt or  
15 about 366 sites across the nation, actually even in  
16 Puerto Rico.

17 My father was one of those workers. My  
18 father worked at Mallinckrodt before I was born.  
19 He worked from 1945 till about 1958. When I was a  
20 child, he was diagnosed with lung cancer which  
21 later went to the brain and to the liver, and then  
22 a second primary of leukemia. He passed away when  
23 I was a child.

24 When I heard about this law being enacted,  
25 I thought of my mother who was 78 at the time and

1 still working and filed a claim for her. And  
2 without dragging the whole long story out, I  
3 uncovered about 8,000 documents that weren't  
4 expected to come forward. And within these  
5 documents, it actually showed many things that the  
6 government and this company was doing. My mother  
7 then was the first payment out for those claimants  
8 in Mallinckrodt.

9 But I didn't want to stop. What I saw  
10 infuriated me and made me sick, so I decided to  
11 continue to fight for these workers. And since  
12 that time, I was the first person in the history of  
13 the United States to do what they call a Special  
14 Exposure Cohort administratively that paid money to  
15 every worker from 1942 to 1957 that worked at  
16 Mallinckrodt that matched a certain criteria. That  
17 criteria included that person had to have one of 22  
18 listed cancers.

19 The things that were at Mallinckrodt were,  
20 as Kay Drey had spoke of earlier, things like  
21 actinium, protactinium, polonium, radon, radium.  
22 These are the things that are at West Lake  
23 Landfill. The mere thought, no matter how remote,  
24 that this would seep into somebody's groundwater is  
25 overwhelmingly frightening.



1           Things were covered up for years by the  
2           government and by the company due to liability  
3           concerns.

4           This is horrible. It's just unbelievable.  
5           We don't know what type of cancers these cause,  
6           what other diseases they cause.

7           And I know that there's another company  
8           that was our sister plaintiff in Ohio that had all  
9           sorts of problems due to stack emissions, things  
10          going into the water, things going into the air.  
11          And there was actually a huge lawsuit there that  
12          was won in the amount of millions of dollars for  
13          those people in the surrounding areas.

14          I agree that something else has to be done.  
15          Dust is definitely an issue. But you've got things  
16          ravinating, things there are so scary in this mess  
17          that, again, the mere thought of this going into  
18          drinking water is just overwhelming.

19          I'm not a resident here, but I just wanted  
20          to speak my peace and say that I support doing  
21          whatever it is to excavate and get this stuff out  
22          of here to Utah, an off-site licensed facility that  
23          can take care of this. Thank you.

24                 MS. FENTON: Chris Waitman.

25                 MS. WAITMAN: Hi. I'm Christine Waitman

1 and I'm a councilperson in Bridgeton, but in 1973 I  
2 also became a resident in Spanish Village,  
3 coincidentally just at the time that dirt was being  
4 dumped illegally, improperly as our government  
5 failed us and did not do its duty.

6 It's difficult for me, although I  
7 appreciate the public forum here, because I feel  
8 that the more people that know about the issue, the  
9 less likely it is to become a health hazard in the  
10 future. I do feel that I am very skeptic of the  
11 government being able to, in perpetuity, watch over  
12 this site and maintain it in a way that will not in  
13 the future damage the health of generations to  
14 come.

15 Mr. Boenker spoke of his six generations of  
16 Boenkers who have lived on the site of his farm,  
17 and certainly that is part of the issue. Not just  
18 for this generation, but for the next six  
19 generations, we want to know that our land and our  
20 water and our air is safe.

21 Also, in addition to that, no studies have  
22 been done to see what health issues might have  
23 resulted from the illegal use of fill at West Lake  
24 in the '70s. Certainly as a mother with a young  
25 child, I would like to know what those risks may be

1 for us in the future.

2 MS. FENTON: Fran Sontag.

3 MS. SONTAG: My name Fran Sontag, and I  
4 won't be too long, I just want to let you know how  
5 I feel.

6 The earth dumped in West Lake is dangerous  
7 and undesirable or it wouldn't have been put there  
8 in the first place. And it's contaminating one of  
9 the longest rivers and most beautiful rivers in  
10 America, so this contaminated earth will leach into  
11 the surrounding earth and water. I don't think  
12 that anybody can convince anyone else that that  
13 doesn't happen over time. And we're talking about  
14 millions and millions of years.

15 So all too soon, and I'm thinking of long-  
16 term, but then maybe even already, there will be  
17 children and our children's children and on down  
18 the line playing in that earth and that water.  
19 Lord knows how large an area it might cover  
20 sometime in the future.

21 So I think it's very irresponsible of us,  
22 of our generation, to leave it be, leave it to do  
23 much more harm in the future. It will continue to  
24 give off radiation millions of years into the  
25 future. We don't know how to store it safely

1 anywhere right now, but let's not leave it in this  
2 hot, heavily populated area.

3 MS. FENTON: Rebecca Wright. And that's  
4 the last one I have.

5 MS. WRIGHT: Well, I think a lot of the  
6 topics that I wanted to mention have been talked  
7 about. I just want to know why the Army Corps of  
8 Engineers is continuing to clean up the waste at  
9 Latty Avenue, at the airport site, and they're  
10 going to deal with the water and the groundwater  
11 along Cold Water Creek, they've hauled away huge  
12 piles of radioactive waste, the same waste that's  
13 here, and I'm wondering why it is so impossible for  
14 the EPA to do this when it's already been done, it  
15 continues to be done by the Army Corps of  
16 Engineers, the same waste. Thank you.

17 MR. WALL: I think we would like to respond  
18 to that one. We see a fundamental distinction  
19 between the decision-making that went on for the  
20 St. Louis sites and the decision-making that went  
21 on here. The criteria was the same, but we reached  
22 different conclusions based on the fact that what  
23 you're talking about the Corps cleaning up is soil  
24 contamination. With the exception of SLAPS, most  
25 of that soil is at or near the surface, it's on

1       myriad commercial properties and green space that  
2       businesses are using. It could be redeveloped, it  
3       could be resold. That presents an impossible  
4       management task. It's just not places where waste  
5       is supposed to be.

6               The West Lake Landfill site is a place  
7       where waste is supposed to be. It's a dedicated  
8       landfill site and its soil is not sitting along the  
9       haul route in six inches of sufficient soil. It's  
10      mixed through a solid waste matrix in a landfill.  
11      And it's in a place where it's not only reasonable  
12      to put in containment measurements and long-term  
13      monitoring maintenance measures, it's expected and  
14      it's required. So it's not such a unreasonable  
15      stretch to talk about managing it in place.

16             MS. BECKER: My name is Denise Becker.  
17       B-E-C-K-E-R. You talk about the cap but haven't  
18       talked about the foundation, and I would be  
19       interesting in hearing about the geologic  
20       foundation. What is the cost makeup beneath?  
21       What's the potential for travel when we're talking  
22       about the groundwater?

23             MR. WALL: You don't have the potential  
24       problems you have with, say, an environment where  
25       you have differential flow paths through bedrock.

1 This is a setting where we have unconsolidated  
2 material that is relatively straightforward to  
3 monitor.

4 MS. BECKER: It would liquefy during an  
5 earthquake or something of that sort?

6 MR. WALL: Is that a question?

7 MS. BECKER: Can you talk about that?

8 MR. WALL: Have we thought about that?

9 MR. GUNN: The question was about an  
10 earthquake, just so everybody could hear.

11 MR. WALL: St. Louis County is in a  
12 potential seismic zone if the New Madrid fault  
13 would become active, so we'll need to incorporate  
14 seismic design requirements into the design to  
15 minimize damage that might occur in an event like  
16 that.

17 A landfill is really not a structure that's  
18 particularly vulnerable to damage in a seismic  
19 event. It's essentially a large urban mound and  
20 it's not like a building or a structure that can be  
21 shaken down. Worst case, you get something like a  
22 slumping slope and we'd have to go out and repair  
23 that. But we could also design it to minimize any  
24 impact that might occur.

25 MAYOR BOWERS: I'm Conrad Bowers and I

1       serve the City as the mayor, and we're so pleased  
2       that you're here and I'm pleased we have seven  
3       council members out of the eight.

4               This, of course, has been quite beneficial  
5       just for us to learn more about the site. Council  
6       did pass a resolution I'll share with you, and we  
7       were unanimous in this resolution, urging you to  
8       remove, to remove, all of the waste.

9               But we realize this is a complex, very  
10       complex and ongoing. It is, it is so complex. And  
11       the more I hear you gentleman speak, the more I  
12       hear everyone speak, it's a very difficult  
13       situation.

14               My question, I guess, is, you know, this is  
15       beyond the City of course, but what is the next  
16       step and who makes the final choice? Who decides  
17       that this Option 7, 6, who makes that choice?

18               MR. GUNN: The next steps in the process  
19       would be after the close of the public comment  
20       period on the 14th of October, the agency, the EPA  
21       partnered with DNR, will make a decision in what we  
22       call a record of decision that will be published  
23       for the public to examine.

24               The next step after the decision would be  
25       to begin to design the actual remedial action

1 should the decision be what we are proposing  
2 tonight.

3 MAYOR BOWERS: The decision, again, is by  
4 the group, the Department of Natural Resources?

5 MR. GUNN: It's actually EPA's decision.

6 MAYOR BOWERS: It is EPA: Just an  
7 administrative decision?

8 MR. WALL: Part of the decision will be a  
9 response and a summary which would explain how  
10 we -- which would be a record of all the comment  
11 that we received and explain how we've considered  
12 that in the decision.

13 MR. GUNN: It's part of the record.

14 MAYOR BOWERS: So many people have been  
15 with us for so many years, not just since 1974, but  
16 the St. Louis metropolitan area, I guess we go back  
17 to the '40s, 50 years, 50-plus, we want to make a  
18 choice that's going to be lasting.

19 I'm a little disturbed here because I asked  
20 to get a copy of all the attendees and they told me  
21 because of privacy I could not, but I would like to  
22 know, you know, who is here from Bridgeton and  
23 others, and I'm told that list roll that you took  
24 cannot be shared; is that correct?

25 MR. GUNN: We'll work on that, Mr. Mayor.



1           MAYOR BOWERS: Yeah, I would like to have a  
2           copy of all the people that attended. And can I  
3           ask how many people are from Bridgeton?

4           (Indicated by a show of hands)

5           MAYOR BOWERS: Quite a few. There's very  
6           much interest. Thank you.

7           MS. TINKER: Darla Tinker. My questions  
8           are: What's going to happen to my property values?

9           And I'm just putting this where the river  
10          meets the road. I have a lot of neighbors in  
11          Spanish Village that have come up with cancer, and  
12          I want straight answers about what's being done to  
13          find out about that. What is the impact on our  
14          residents that have lived in this subdivision for  
15          30 years? I've got people all around me who have  
16          come up with cancer and it just doesn't make sense.  
17          So what kind of answers can you give us about that?

18          MR. GUNN: We're going to hear from the  
19          Health Department. Gale Carlson is going to  
20          address the health questions.

21          MR. CARLSON: Yeah, I'll be glad to take  
22          anyone's name who is interested in beginning what's  
23          called a Cancer Cluster Investigation.

24          I'll tell you what we do. We contact the  
25          person who starts it, and if you were available to

1 be that person, we ask you to hand out documents to  
2 citizens in your area. The reason we don't do that  
3 to begin with is we don't know where to stop and  
4 where to start, we don't know how big this should  
5 get.

6 If people are interested, they then  
7 directly supply information back to us that tells  
8 us about their cancer. That then gives us  
9 permission to even follow this further. Because  
10 just as we were talking a minute ago, the idea  
11 about privacy is real important. We can't just  
12 start these kind of studies without permission.

13 What we would do then is we would look at  
14 the various kinds of cancer and determine a couple  
15 of things about it. For instance, let's say ten  
16 people in Spanish Village have lung cancer and 20  
17 people have leukemia and three people have  
18 something else. Truthfully, the first thing we do  
19 is we would say how many of these people that are  
20 lung cancer sufferers were smokers? Because  
21 smoking is such a huge impact. We don't even try  
22 to study that for any environmental kinds of risk.

23 But we would then try to compare what the  
24 kinds of cancers are with the kinds of exposures  
25 that could occur in your area. So if, for

1 instance, the cancers were cancers that were  
2 related to exposure to a radioactive substance, if  
3 the cancers -- the majority of them seem to be  
4 related, we then go to what's called a Stage 2  
5 investigation. Then we would actually come out and  
6 actually discuss this with the individuals, we'd  
7 talk to their physicians, we would get their actual  
8 medical records, and then try to determine even  
9 more carefully exactly if they had this kind of  
10 cancer.

11 We also have to determine if the cancers,  
12 let's say, occurred in a time frame that makes  
13 sense. So, for instance, if a person in 1975 got  
14 cancer, it's very unlikely that it could be coming  
15 from a 1973 dumping. It takes a real long time for  
16 the cancer latency period. So some cancers you can  
17 get them quicker, some you can't.

18 But basically -- and then we would even go  
19 to a Stage 3 study, and that's very rarely done,  
20 but that's when we really start to get out  
21 ourselves and knock on doors, talk to people, and  
22 then try to actually determine if there was an  
23 exposure or if there is an exposure. It's much  
24 harder to do. But that's the process that we have.

25 So I'd be glad to start that process with

1 anybody that wants to do it. And then we have a  
2 special group of people in the department that run  
3 these investigations. I will tell you that we  
4 don't just do it ourselves. For instance, the DNR  
5 sits on a panel that talks about these things. So  
6 if we have questions about the environment, rather  
7 than us trying to figure that out, we can use EPA  
8 and DNR expertise and say, Okay, for instance,  
9 there is cancer in this area, was there exposure or  
10 is there exposure? So we can do those kind of  
11 things.

12           Something else I wanted to talk about while  
13 they got me up here. I used to go out and water  
14 sample around West Lake Landfill. Private water  
15 samples. There was one well in Spanish Village  
16 years ago that I was able to water sample. There  
17 was one real close and I sampled it for a number of  
18 years and then they went on public water. There  
19 were other water sample places in the area. I  
20 sampled from 1984 to 1993. We stopped there  
21 because after the flood, there was basically  
22 nothing left, the development in this area became  
23 more commercial.

24           But I'll tell you tonight also, if you've  
25 got a private well and you want it sampled, we'll

1 sample it.

2 And, again, I was standing, like, I forget  
3 exactly where, on St. Charles Rock Road, trying to  
4 get to the last well that I thought might have been  
5 down there. And the flood was -- I couldn't get  
6 through there. After that I just didn't even try.

7 We used to sample all the way as far as,  
8 you know that hunting or that shooting range north  
9 of Old St. Charles Rock Road? That's about as far  
10 north as we went because they had a private well.

11 We sampled a number of the truck farms on  
12 the north side of St. Charles Rock Road. To my  
13 knowledge they're all gone, so I just stopped  
14 trying to do the sampling.

15 But I'd be glad to sample any waters that  
16 people are still drinking, and in fact, I'd even  
17 sample irrigation wells just to see what's out  
18 there. If you've got that kind of stuff, let me  
19 know.

20 UNIDENTIFIED SPEAKER: Can you typify the  
21 things you found?

22 MR. CARLSON: We didn't find anything. We  
23 never found any radioactive materials at all except  
24 for one farm where they actually were using  
25 pesticides on the farm and actually filling the

1 pesticide spray equipment near the wellhead were  
2 the only people that we found anything. That was,  
3 of course, the pesticide that they were using. We  
4 did find fecal contamination, coliform bacteria  
5 contamination, because a lot of those alluvial  
6 wells were very shallow so you're getting, you  
7 know, septic system runoff and stuff from animals.

8 UNIDENTIFIED SPEAKER: The latency, what  
9 kind of parameters is the latency for radon and all  
10 these other chemicals?

11 MR. CARLSON: I'm not a cancer expert, I  
12 really can't tell you that, but I'm going to guess  
13 it's still a number of years. After the meeting,  
14 I'll give you a card.

15 MS. FENTON: We had one more card. I  
16 apologize. Paul, he's going to say the last name.

17 MR. ROSASCO: My name's Paul Rosasco, and  
18 I'm the engineer that is responsible for preparing  
19 the RI report, remedial investigation report, and  
20 also the feasibility study report. Those documents  
21 were prepared in response to an order the EPA  
22 issued to various parties, and I was the contractor  
23 who prepared those.

24 There's been a lot of discussion tonight  
25 about contamination. I want to talk a little bit

1 about the data. We did extensive groundwater  
2 monitoring, monitoring wells all around the site as  
3 was discussed.

4 Yes, indeed, there was radionuclides in the  
5 upgradient well. One of the upgradient wells.  
6 That well no longer exists. It's under the Rams  
7 training facility now. But that was naturally  
8 occurring. It was so far from where the  
9 radionuclides are present at the side, it couldn't  
10 come from the site. It just shows you they are  
11 naturally present substances.

12 We monitored all around the site. I think  
13 the discussion was by one of the speakers about how  
14 we don't monitor far away. Well, the thing is if  
15 you're closer to the source, that's where you  
16 expect to find it. If there is groundwater  
17 contamination, it's highest near the source. We've  
18 never seen anything.

19 The idea is we will continue the  
20 monitoring. We put the cap on it so that no water  
21 continues to leach through it and that will prevent  
22 groundwater contamination. I think this was  
23 discussed. If the monitoring shows something needs  
24 to be discussed, then that's one of the options  
25 that can be done. But to-date, after 30 years,

1       there's been nothing found in the groundwater. And  
2       that's based on extensive sample collection and lab  
3       analyses.

4               And we finished the RI and it was approved  
5       and the EPA asked us to back go out and do more  
6       monitoring just to continue to evaluate what was  
7       occurring. And I think you heard the State talk  
8       about how there will be a State-required monitoring  
9       plan to assess it.

10              There's also no contamination in the  
11       surface water. We monitored the surface water, it  
12       runs off on site. They had us go out during storm  
13       events to see whether stuff was running off. We  
14       checked all the ponds around there. There was  
15       nothing in the surface water and there was nothing  
16       in the sediments, the fine sediment that could  
17       accumulate in the bottom of the surface water  
18       ponds.

19              The other issue was the floodplain was  
20       raised. There was a map done back in '95 by FEMA,  
21       the Federal Emergency Management Agency, that  
22       mapped the area as being either in the hundred-year  
23       floodplain or in the hundred-year floodplain  
24       subject to less than one foot of water during a  
25       flood, or in the hundred-year floodplain and it was



1       protected by the levies or the 500-year floodplain.

2               We discovered recently that that map has  
3       been revised; that FEMA issued a letter of map  
4       revision to say it's now not in the hundred-year  
5       floodplain, it may be in the 500-year floodplain.  
6       But that whole thing is protected by the Earth City  
7       levies which were designed for something greater  
8       than the 500-year floodplain. I think as Dan tried  
9       to show earlier on the photo, during the '93 flood,  
10      the 500-year flood, the Earth City levies did  
11      protect the area and nothing came in.

12             The rad. material is located, I think the  
13      doctor pointed out that it's generally found at  
14      depths of one foot to ten feet, and that's  
15      generally correct. There are a few places where  
16      it's a little deeper, but generally it's about that  
17      depth. That puts it 10 to 15 feet above the flood  
18      elevation.

19             Let's see. Another issue that was raised,  
20      I think somebody raised the earthquake issue. Dan  
21      covered this a bit. The soils that are subject to  
22      liquefaction are not the alluvial type soils that  
23      we have here. They're not sand and gravels. Those  
24      are fine grain soils that are subject to  
25      liquefaction. These soils are not those type of

1       soils.

2               We also don't have any buried structures or  
3       anything that could be changed that we wouldn't be  
4       able to see. What we do is put a cap on it, and if  
5       the cap for some reason, as Dan said, if there was  
6       a slump or something in it, you go out -- we have  
7       to do regular inspections -- and if there was  
8       identification of a crack or something like that  
9       that came from an earthquake, we'd have to go out  
10      and repair it.

11             There were a number of comments raised, I  
12      think there was one lady who made a number of  
13      questions about the cap. I think they issue a  
14      30-year life. That relates to manmade materials,  
15      plastics, geosynthetics, not to earthen materials.  
16      And that's why we're looking at a clay cap.

17             Someone else said it was an unspecified  
18      thickness. For purposes of the feasibility study,  
19      we made an assessment of how much soil it would  
20      take to protect against gamma radiation. It was 30  
21      inches. So we've got 36 built in of soil, two feet  
22      of which is clay. That's what the Missouri regs  
23      require.

24             There was an issue about mixed particle  
25      sizes and void spaces. The clay is two feet thick.

1 It will be laid down in six-inch lifts and  
2 compacted to meet a specification for permeability  
3 so that water don't go through it, and there will  
4 be four lifts of it. There will not be a mix of  
5 sizes in the clay. It will be all clay material.

6 There was an issue about plants dying and  
7 leaving holes. One of the types of vegetation --  
8 right now the site does have trees and things like  
9 that on it. That's not what we're going to have.  
10 We're going to put shallow rooted grasses in one  
11 foot.

12 Last point. The question about the cost.  
13 O and M costs were included in the assessment  
14 written in proposed plan. It is not the million  
15 dollars that I guess Weldon Springs is looking at.  
16 They ran from 15,000 to \$120,000 per year, which  
17 was factored in to the cost.

18 MR. GUNN: We're way past when I told you  
19 our goal was. Seeing no more public comment, no  
20 more cards, I'm going to declare this public  
21 meeting closed. Thank you all for coming. You  
22 were very polite and we appreciate that. And have  
23 a safe evening and drive home.  
24  
25

1 STATE OF MISSOURI

2 SS

3 COUNTY OF ST. LOUIS

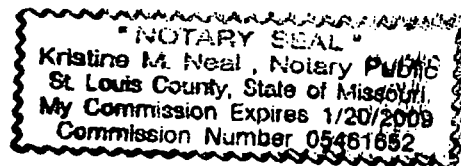
4  
5 I, Kristine M. Neal, do hereby certify  
6 that I was attended at the Bridgeton City Hall,  
7 11955 Natural Bridge Road, in the City of  
8 Bridgeton, State of Missouri, on the 14th day of  
9 September, 2006.

10 I further certify that the foregoing was  
11 by me recorded in shorthand and afterwards  
12 transcribed into typewriting, and is in all  
13 respects a full, true, correct and complete  
14 transcript of said proceedings.

15 Witness my hand and notarial seal at St.  
16 Louis, Missouri, this 23rd day of September, 2006.

17 My Commission expires January 20th, 2009.

18  
19 Kristine M. Neal  
20 Notary Public in and for the State  
21 of Missouri



1 COURT MEMO

2 .

3 4

5 West Lake Landfill Public Meeting

6  
7  
8 CERTIFICATE OF OFFICER AND

9 STATEMENT OF DEPOSITION CHARGES

10  
11 DEPOSITION OF PROCEEDINGS

12 TAKEN ON BEHALF OF THE

13 9/14/2006

14 Name and address of person or firm having custody of  
15 the original transcript:

16 Cheryle Micinski

17 Unknown

18 UnKnown, UnKnown

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10 that all charges will be paid in the normal course

11 of business.

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15 IN WITNESS WHEREOF, I have hereunto set

16 my hand and seal on this \_\_\_\_\_ day of \_\_\_\_\_

17 Commission expires *Kristine M. Nest*

18 \_\_\_\_\_

19 Notary Public

20

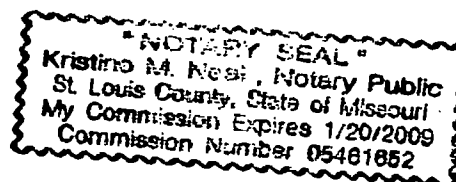
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